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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

JUNE, 94

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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-12. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1. |bias| $\geq$ 4 hPa (pressure),
   $\geq$ 5 $m\ s^{-1}$ (wind speed),
   $\geq$ 30 degrees (direction).

2. SD $\geq$ 6 hPa (pressure),
   $\geq$ 80 degrees (direction).

3. PGE $\geq$ 25

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA-LEVEL PRESSURE									
CFD3491	ALL	MSLP	SUR	48	42	88	5.5	-6.3	8.3
CG2960	ALL	MSLP	SUR	164	53	32	1.4	2.2	2.7
CZ9742	ALL	MSLP	SUR	43	43	100	0.0	0.0	0.0
DVRF	ALL	MSLP	SUR	153	0	0	0.8	4.4	4.5
ELIU4	ALL	MSLP	SUR	33	0	0	2.7	-5.3	6.0
ELND2	ALL	MSLP	SUR	41	0	0	1.3	4.0	4.2
ESDI	ALL	MSLP	SUR	45	0	0	1.1	-5.3	5.4
EUAF	ALL	MSLP	SUR	20	0	0	0.7	5.4	5.4
KXDB	ALL	MSLP	SUR	44	4	9	1.7	-11.4	11.5
LAMT4	ALL	MSLP	SUR	22	0	0	0.9	4.7	4.8
PENQ	ALL	MSLP	SUR	48	1	2	1.0	-4.0	4.1
UKTV	ALL	MSLP	SUR	20	0	0	1.6	5.3	5.5
UYKD	ALL	MSLP	SUR	28	4	14	7.0	-2.6	7.5
VRUA4	ALL	MSLP	SUR	35	0	0	1.3	4.2	4.4
WCB5820	ALL	MSLP	SUR	43	0	0	4.2	5.9	7.2
WZE4928	ALL	MSLP	SUR	52	51	98	0.0	1.2	1.2
ZCAM9	ALL	MSLP	SUR	30	1	3	1.8	4.5	4.8
3EAY5	ALL	MSLP	SUR	25	0	0	1.1	-4.5	4.6
3FBK	ALL	MSLP	SUR	41	0	0	1.1	8.7	8.8
WIND SPEED									
C6DY8	ALL	SPEED	SUR	32	0	0	2.7	8.4	8.9
C6KF2	ALL	SPEED	SUR	80	0	0	4.3	7.8	8.9
ELLE9	ALL	SPEED	SUR	89	4	4	5.8	10.4	11.9
FNIH	ALL	SPEED	SUR	45	1	2	6.9	11.6	13.5
FNVA	ALL	SPEED	SUR	74	1	1	4.2	5.5	6.9
KDVG	ALL	SPEED	SUR	23	3	13	6.0	8.6	10.5
OWPU2	ALL	SPEED	SUR	33	1	3	7.2	6.2	9.5
PFRX	ALL	SPEED	SUR	21	0	0	2.9	7.3	7.8
P3YG3	ALL	SPEED	SUR	21	0	0	2.9	6.0	6.6
SXYY	ALL	SPEED	SUR	20	0	0	4.3	8.1	9.2
S6CL	ALL	SPEED	SUR	24	0	0	2.9	8.5	9.0
VJBE	ALL	SPEED	SUR	27	0	0	3.5	6.2	7.1
VPGB	ALL	SPEED	SUR	41	0	0	2.4	5.1	5.6
VRIZ	ALL	SPEED	SUR	22	0	0	3.4	6.4	7.3
44144	ALL	SPEED	SUR	112	0	0	3.6	5.0	6.1
46054	ALL	SPEED	SUR	103	0	0	2.8	5.6	6.3
WIND DIRECTION									
CGBN	ALL	DIRN.	SUR	76	0	0	73.7	-38.6	83.2
ESDO	ALL	DIRN.	SUR	23	0	0	44.7	33.1	55.6
3ECO9	ALL	DIRN.	SUR	22	1	5	39.7	30.8	50.3
42030	ALL	DIRN.	SUR	100	0	0	25.8	-30.4	39.9
45007	ALL	DIRN.	SUR	38	0	0	17.0	-31.4	35.7
46045	ALL	DIRN.	SUR	25	0	0	67.2	-32.3	74.5
46053	ALL	DIRN.	SUR	72	0	0	53.7	-62.8	82.6
46131	ALL	DIRN.	SUR	39	0	0	58.7	-42.7	72.6
46146	ALL	DIRN.	SUR	43	0	0	66.7	-56.8	87.6
46181	ALL	DIRN.	SUR	51	0	0	71.7	-33.5	79.1
51307	ALL	DIRN.	SUR	48	0	0	76.8	-44.8	88.9
9KKX	ALL	DIRN.	SUR	47	0	0	61.1	-41.8	74.0

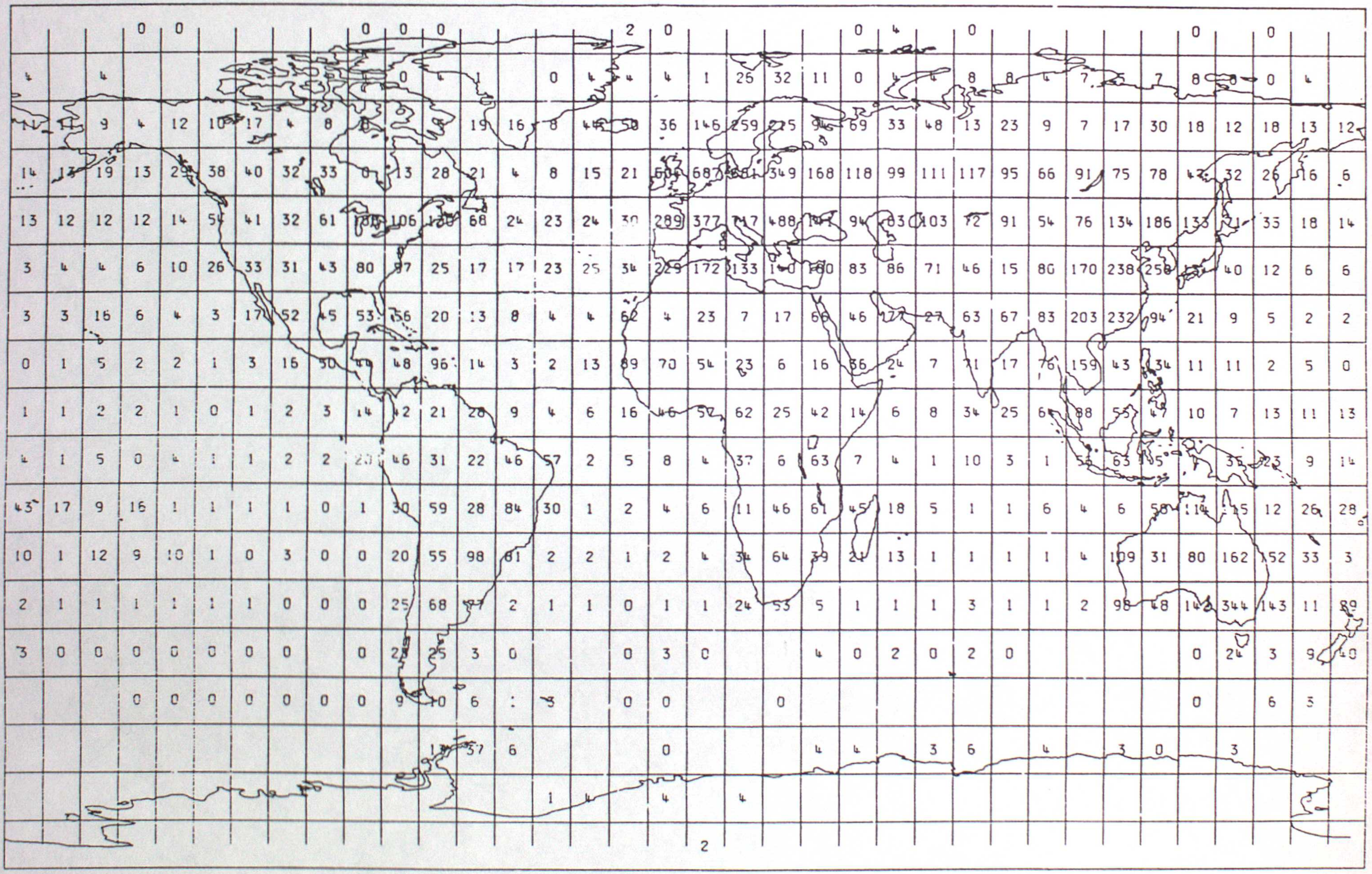
AVAILABILITY - SHIP/SYNOP - JUNE 1994

FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 19001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14 13 19 13 29 38 40 32 33 0 13 28 21 4 8 15 21 505 687 681 349 168 118 99 111 117 95 66 91 75 78 43 32 26 16 6
13 12 12 12 14 54 41 32 61 185 106 130 68 24 23 24 30 289 377 717 488 141 94 83 103 72 91 54 76 134 186 133 71 35 18 14
3 4 4 6 10 26 33 31 43 80 97 25 17 17 23 25 34 229 172 133 140 180 83 86 71 46 15 80 170 238 258 13 40 12 6 6
3 3 16 6 4 3 17 52 45 53 56 20 13 8 4 4 62 4 23 7 17 66 46 127 27 63 67 83 203 232 94 21 9 5 2 2
0 1 5 2 2 1 3 16 50 44 48 96 14 3 2 13 89 70 54 23 6 16 36 24 7 71 17 76 159 43 34 11 11 2 5 0
1 1 2 2 1 0 1 2 3 14 42 21 28 9 4 6 16 46 57 62 25 42 14 6 8 34 25 64 88 55 47 10 7 13 11 13
4 1 5 0 4 1 1 2 2 20 46 31 22 46 57 2 5 8 4 37 6 63 7 4 1 10 3 1 55 63 105 35 23 9 14
43 17 9 16 1 1 1 1 0 1 30 59 28 84 30 1 2 4 6 11 46 61 45 18 5 1 1 6 4 6 58 114 115 12 26 28
10 1 12 9 10 1 0 3 0 0 20 55 98 81 2 2 1 2 4 34 64 39 21 13 1 1 1 1 4 109 31 80 162 152 33 3
2 1 1 1 1 1 1 0 0 0 25 68 97 2 1 1 0 1 1 24 53 5 1 1 1 3 1 1 2 98 48 142 344 143 11 89
3 0 0 0 0 0 0 0 0 23 25 3 0 0 3 0 4 0 2 0 2 0 0 24 3 9 40
0 0 0 0 0 0 0 9 10 6 : 3 0 0 0 0 6 3
13 57 6 0 4 4 3 6 4 3 0 3
1 4 4 4
2

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.|bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25.

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA-LEVEL PRESSURE											
48546	77.0	-160.1	ALL	MSLP	SUR	91	4	4	6.8	1.3	6.9
56515	-35.1	122.7	ALL	MSLP	SUR	193	24	12	4.8	4.8	6.8
WIND DIRECTION											
55578	-31.0	-176.4	ALL	DIRN.	SUR	118	4	3	76.4	48.8	90.7

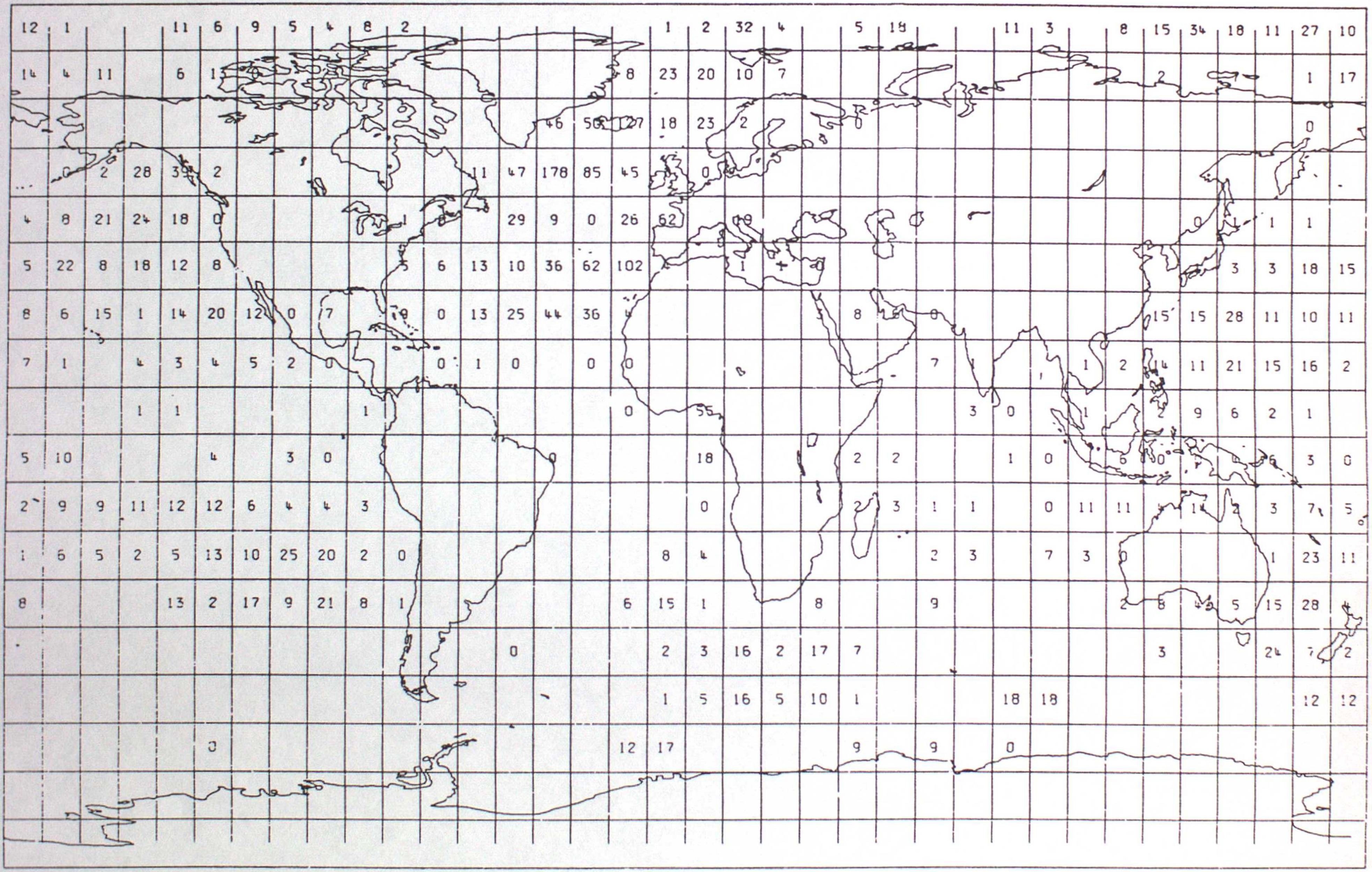
AVAILABILITY - DRIBU - JUNE 1994

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 2992

FIGURE 2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5 22 8 18 12 8 5 6 13 10 36 62 102 1 0 3 3 18 15
8 6 15 1 14 20 12 0 7 19 0 13 25 44 36 4 5 8 0 15 15 28 11 10 11
7 1 4 3 4 5 2 0 0 1 0 0 0 7 1 1 2 14 11 21 15 16 2
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5 10 4 3 0 0 18 2 2 1 0 6 0 6 3 0
2 9 9 11 12 12 6 4 4 3 0 2 3 1 1 0 11 11 4 14 2 3 7 5
1 6 5 2 5 13 10 25 20 2 0 8 4 2 3 7 3 0 1 23 11
8 13 2 17 9 21 8 1 6 15 1 8 9 2 8 4 5 15 28 4
0 2 3 16 2 17 7 3 24 7 2
1 5 16 5 10 1 18 18 12 12
0 12 17 9 9 0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for synops & autosynops.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).

Parameters monitored

:HT(m) :Station height (in metres) as given in WMO No. 9 Vol A

:RP :Pressure reporting practice
M=mean sea level pressure (hPa) reported.
S=Station level pressure reported.
8=Geopotential height (m) of 850 hPa surface reported.
7=Geopotential height (m) of 700 hPa surface reported.

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:%REJ :Percentage of observations flaggled.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)

SELECTION CRITERIA :NOBS ≥ 20 ,and one or more of the following:

1.|bias| ≥ 4 hPa
2. SD ≥ 6 hPa
3.PGE ≥ 25.

Note:- **For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.**
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	117	0	0	75	1.1	4.2	4.3
60468	35.6N	6.2E	1052	S8	116	116	100	42	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	117	111	95	99	0.3	14.4	14.4
60571	31.6N	2.2W	773	S8	113	0	0	21	1.2	-4.4	4.6
60670	24.6N	9.5E	1054	S8	110	1	1	99	0.9	8.5	8.5
63333	11.1N	39.7E	1916	MS	48	1	2	88	0.9	8.2	8.2
63402	7.7N	36.8E	1577	MS	81	47	58	96	0.8	-13.7	13.7
63453	8.8N	39.8E	1062	S	67	3	4	99	1.5	11.6	11.7
63474	7.1N	40.0E	2450	S	49	49	100	0	0.0	0.0	0.0
63478	5.1N	44.6E	320	MS	48	0	0	56	1.7	6.9	7.1
63801	4.9S	29.6E	885	S8	22	1	5	86	0.7	7.8	7.8
64503	3.4S	10.7E	34	M	41	0	0	93	2.3	-8.3	8.6
64507	2.9S	11.0E	79	M	85	0	0	94	2.2	-6.6	7.0
64911	5.0N	9.9E	821	8	85	0	0	28	1.5	-4.3	4.6
67022	14.7S	49.6E	474	MS	26	25	96	0	0.0	0.5	0.5
68014	19.6S	18.1E	1411	S8	78	1	1	74	1.3	-6.2	6.3
68752	32.8S	27.4E	524	S8	75	0	0	100	1.3	-8.6	8.7

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
25902	60.8N	151.8E	797	M	54	1	2	98	1.2	-13.0	13.1
29999	52.5N	99.8E	1570	S8	68	68	100	84	0.0	0.0	0.0
30554	54.5N	113.6E	995	MS	56	2	4	98	3.4	10.6	11.1
38696	39.6N	66.9E	675	MS	58	0	0	79	0.8	-5.1	5.2
38836	38.6N	68.8E	824	MS	48	2	4	8	1.3	4.0	4.2
40356	31.7N	38.7E	818	S8	117	0	0	58	1.0	-5.0	5.1
40376	27.6N	38.6E	860	MS	75	74	99	0	0.0	2.7	2.7
40432	25.8N	42.0E	783	MS	73	73	100	0	0.0	0.0	0.0
40450	23.7N	44.6E	1080	MS	38	38	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	S	61	0	0	93	1.4	7.1	7.2
40723	37.5N	57.3E	1074	S	21	0	0	14	1.4	-4.1	4.3
40726	36.8N	45.7E	1385	MS	20	1	5	75	1.2	5.5	5.6
40740	36.8N	54.3E	1287	MS	70	4	6	29	2.1	-4.0	4.5
40743	36.2N	57.7E	941	M	105	2	2	52	1.8	-6.3	6.6
40762	35.3N	59.2E	1333	MS	103	35	34	99	1.2	-13.5	13.6
40763	35.2N	58.5E	1060	MS	28	1	4	61	2.1	-6.7	7.0
40783	32.4N	49.7E	1972	M	23	0	0	52	1.4	-5.5	5.7
40789	33.8N	55.1E	921	MS	46	2	4	85	2.1	6.2	6.5
40836	30.8N	51.7E	1880	M	45	1	2	89	1.4	7.6	7.7
40859	29.0N	53.7E	1383	MS	69	2	3	96	2.0	8.4	8.6
41254	23.1N	57.7E	1755	S	87	87	100	99	0.0	0.0	0.0
44241	48.9N	106.1E	807	S	66	11	17	86	3.7	10.1	10.8
44292	47.9N	107.0E	1338	MS	91	0	0	0	1.5	5.1	5.3
44416	28.6N	81.6E	720	MS	43	0	0	0	1.7	6.4	6.6
44438	27.5N	83.5E	109	MS	43	0	0	5	2.2	4.1	4.7
44477	27.0N	87.4E	1445	S8	41	40	98	98	0.0	-2.3	2.3
51467	42.7N	86.3E	1753	S	117	0	0	0	1.8	7.0	7.2
52602	38.8N	93.4E	2734	S	118	0	0	0	1.7	-5.0	5.3
52866	36.7N	101.8E	2296	S	119	0	0	27	1.5	6.1	6.3
56287	30.0N	103.0E	629	M	118	0	0	45	1.9	6.0	6.3
56444	28.5N	98.9E	3488	S	117	117	100	100	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	107	0	0	0	2.0	6.6	6.9
57622	28.9N	107.2E	1907	S	119	0	0	0	1.2	-9.9	10.0
57816	26.5N	106.7E	1222	MS	115	115	100	100	0.0	0.0	0.0

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
82287	2.9S	41.6W	22	MS	25	14	56	100	1.4	-12.1	12.2
83235	12.3S	46.4W	660	MS	42	0	0	93	0.7	6.2	6.2
83295	13.4S	39.9W	755	MS	25	1	4	80	0.5	-4.2	4.2
83332	14.1S	46.4W	950	MS	76	8	11	100	0.7	13.7	13.7
83376	15.9S	49.0W	730	MS	80	0	0	11	1.1	-4.6	4.7
83423	16.7S	49.3W	729	MS	81	0	0	28	1.1	-5.6	5.7
83488	17.8S	42.9W	1097	MS	41	41	100	88	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	60	0	0	63	3.1	-5.7	6.5
83531	18.6S	46.5W	896	MS	52	6	12	77	0.9	-7.7	7.8
83587	19.8S	43.9W	850	MS	63	2	3	0	1.2	-8.0	8.1
83689	21.3S	43.8W	1171	MS	29	1	3	83	1.0	5.0	5.1
83704	22.3S	53.9W	369	MS	62	11	18	97	2.0	-9.4	9.6
83736	22.1S	45.0W	900	MS	21	1	5	71	0.9	4.9	5.0
84401	5.2S	80.6W	50	MS	95	0	0	0	1.5	4.6	4.8
84425	5.9S	76.1W	184	MS	49	0	0	0	3.8	5.9	7.0
84455	6.5S	76.4W	282	MS	55	0	0	9	2.4	6.1	6.6
84472	7.1S	78.5W	2622	S	46	2	4	78	2.1	-6.9	7.2
84501	8.1S	79.0W	30	MS	95	1	1	1	1.1	4.3	4.4
84531	9.2S	78.5W	21	MS	55	0	0	0	1.3	5.6	5.7
84628	12.0S	77.1W	13	MS	119	0	0	0	1.3	4.3	4.5
84658	12.6S	69.2W	266	MS	62	0	0	0	2.0	6.5	6.8
84686	13.6S	72.0W	3249	S	109	0	0	22	2.0	-6.1	6.4
84782	18.1S	70.3W	469	MS	93	1	1	0	1.6	4.7	5.0
85201	16.5S	68.2W	4071	S	111	0	0	0	1.2	5.1	5.2
85230	17.6S	69.4W	4057	S	55	1	2	16	1.3	5.1	5.3
85406	18.3S	70.3W	58	M	117	0	0	0	1.3	5.3	5.5
87046	24.4S	65.1W	905	S8	101	101	100	0	0.0	0.0	0.0
87322	31.3S	66.6W	658	MS	74	74	100	0	0.0	0.0	0.0

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76118	30.4N	109.7W	1040	MS	35	0	0	100	1.1	-9.5	9.6
76373	25.3N	105.8W	1967	MS	59	51	86	98	0.3	14.6	14.6
76539	22.1N	101.0W	1871	MS	89	1	1	74	1.2	-4.2	4.4
76632	20.1N	98.7W	2417	MS	55	0	0	98	0.8	-6.1	6.2
76692	19.1N	96.1W	13	MS	67	0	0	3	1.3	4.5	4.7
76726	18.9N	99.3W	1560	MS	79	0	0	100	1.2	-7.8	7.9
76762	17.5N	99.5W	1360	MS	74	1	1	99	1.2	11.7	11.8
76775	17.1N	96.7W	1550	MS	40	2	5	3	1.1	4.0	4.1
76848	16.3N	92.1W	1530	MS	82	5	6	98	1.4	-12.9	13.0
78397	18.1N	76.9W	786	MS	108	108	100	0	0.0	0.0	0.0

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
94001	6.1S	141.3E	-9999	M	96	0	0	0	0.9	4.1	4.2

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	87	0	0	100	1.0	-5.5	5.6
01446	59.6N	8.3E	804	MS	85	0	0	66	5.4	7.0	8.8
03410	52.8N	3.5W	359	M	34	22	65	0	1.1	0.1	1.1
04110	71.5N	26.5W	-9999	7	65	6	9	32	6.0	-0.3	6.0
04253	62.6N	50.4W	22	MS	86	5	6	50	6.2	6.4	8.9
08221	40.5N	3.6W	633	MS	107	0	0	92	1.4	5.2	5.4

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
11021	49.0N	15.0E	561	MS	114	0	0	49	1.0	4.0	4.1
11241	47.2N	15.5E	1438	S8	85	23	27	36	3.6	-2.1	4.2
11360	47.5N	14.1E	710	MS	22	0	0	45	0.9	4.0	4.1
15052	47.4N	25.6E	1541	S8	112	1	1	0	0.9	-4.2	4.3
16020	46.5N	11.3E	1461	MS	86	86	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	115	0	0	98	1.4	-7.7	7.8
17084	40.6N	35.0E	837	MS	113	0	0	97	1.5	6.9	7.1
17190	38.8N	30.5E	1034	S8	106	0	0	75	1.3	4.0	4.2
17260	37.1N	37.4E	855	MS	108	96	89	100	0.3	14.6	14.6
40184	31.8N	35.2E	809	S8	117	0	0	97	2.4	5.6	6.1

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89667	78.0S	166.5E	20	MS	107	4	4	7	3.1	5.8	6.6
89757	73.8S	55.7E	2775	S7	67	67	100	99	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	78	1	1	40	3.6	-9.0	9.7
89811	66.7S	112.9E	1362	S8	79	23	29	78	2.5	-10.7	11.0
89828	74.5S	123.0E	3280	S7	108	21	19	56	4.7	8.5	9.7
89832	66.7S	139.8E	240	MS	44	44	100	100	0.0	0.0	0.0
89860	74.2S	160.3E	1772	S8	101	0	0	8	4.0	-5.1	6.5
89861	74.5S	160.5E	1525	S8	104	4	4	18	3.6	-7.3	8.1
89866	77.4S	163.8E	120	MS	105	4	4	30	3.4	6.6	7.4
89868	79.9S	169.8E	60	MS	99	99	100	95	0.0	0.0	0.0

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

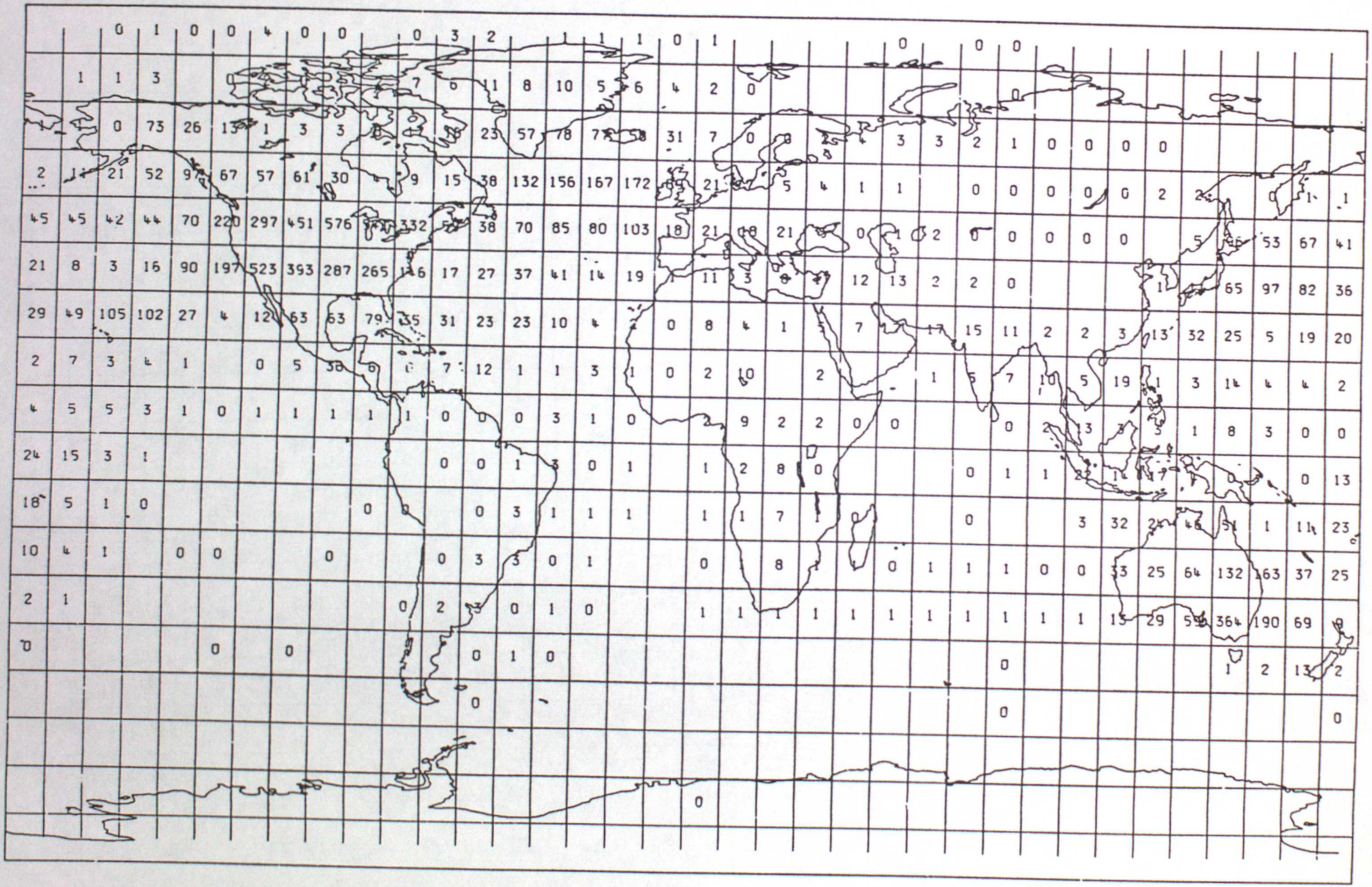
		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	112	3	4	1.9	0.4	111	0	2	0	8.1	1.3
AAH	20	0	0	3.2	0.9	20	0	0	0	6.1	0.4
AAL	4459	1	1	1.7	0.1	4475	0	2	0	7.4	1.6
AAN	133	0	2	1.4	-0.5	121	0	7	2	8.7	0.6
AAR	1544	1	2	1.5	-0.1	1533	0	3	0	8.5	1.0
ACA	944	1	2	2.0	-0.3	968	0	2	1	6.9	1.0
ACI	33	0	3	2.1	0.8	33	0	0	0	7.8	1.3
ADV	60	2	2	2.5	1.5	60	0	2	0	8.1	2.5
AEA	173	1	3	1.7	-0.1	165	0	5	0	9.6	0.9
AEL	249	2	6	1.8	0.0	251	0	5	0	7.0	1.1
AFL	113	4	100	3.7	2.1	121	1	100	3	13.5	1.1
AFR	1113	1	6	2.0	0.0	1122	0	6	0	7.9	1.5
AIC	35	0	3	2.0	-0.8	36	0	6	0	10.5	1.9
AJJ	46	0	2	3.0	-2.1	47	0	4	0	12.6	-0.2
AMM	35	3	3	1.9	0.1	35	0	3	0	8.5	1.5
AMT	393	0	0	1.5	0.7	408	0	1	0	7.4	1.4
AMX	367	1	2	1.4	0.1	368	0	1	0	7.2	0.8
ANA	889	0	1	1.7	-0.1	890	0	2	1	7.8	1.5
ANZ	3026	1	2	1.9	-0.1	3011	0	3	1	8.5	1.6
AOM	557	1	1	1.4	0.4	559	0	1	0	7.5	1.7
ARG	25	0	0	2.2	0.0	26	0	0	0	6.5	0.9
ARP	291	1	2	1.6	0.6	283	0	5	4	7.4	1.1
ASY	54	0	0	1.2	-0.5	54	0	2	0	7.9	2.1
ATN	178	0	2	2.5	-1.7	178	0	7	0	12.4	3.4
AUA	113	0	4	1.7	-0.6	117	0	5	0	8.0	1.3
AVA	352	1	2	1.7	-0.2	356	0	3	1	7.6	1.5
AVN	33	0	3	2.0	1.0	33	0	0	0	8.0	1.6
AVY	20	0	5	1.8	-1.0	20	0	5	0	10.5	1.6
AZA	551	1	3	2.0	0.2	551	0	4	0	7.7	1.5
BAL	343	4	16	1.8	-0.1	346	0	14	1	8.3	1.7
BAW	1498	1	3	2.0	-0.1	1519	0	4	1	8.2	1.6
BBB	112	0	16	1.2	-0.7	115	0	17	0	6.0	1.9
BWA	439	1	2	1.7	0.9	443	0	3	1	8.2	2.1
CAL	1761	1	2	1.8	-0.3	1762	0	2	0	8.2	1.1
CCA	268	1	94	2.3	0.2	270	0	4	0	11.2	2.2
CDN	2299	0	2	2.2	0.5	2310	0	3	1	7.9	1.9
CES	219	0	1	1.7	0.5	219	0	3	0	9.9	1.9
CFC	45	2	11	2.4	-0.4	45	0	9	0	8.6	1.3
CFG	762	0	100	1.9	-1.0	769	0	2	0	6.9	1.5
CKS	136	1	99	2.1	-0.8	136	0	99	1	11.5	1.1
CKT	65	0	5	2.1	0.3	68	0	6	1	6.2	0.2
CLI	124	0	4	2.5	-0.3	127	0	2	1	7.3	1.9
CLX	48	0	4	2.4	-0.9	47	0	0	0	6.7	2.0
CMI	1235	1	3	2.1	0.6	1241	0	4	2	8.8	2.1
CMM	217	0	5	1.7	0.1	219	0	5	0	7.8	0.9
COA	894	1	3	1.7	0.5	906	0	3	0	7.6	1.5
CPA	144	3	4	1.8	-0.1	137	0	1	1	9.3	2.3
CRL	122	1	6	2.9	0.3	124	1	2	2	6.8	1.5
CSA	20	0	0	1.8	-0.3	20	0	0	0	7.1	1.2
CTM	103	0	99	2.7	-1.1	106	0	11	1	7.8	1.5
CUB	127	2	5	2.4	1.1	128	0	9	3	8.9	2.3
DAE	33	6	12	3.3	2.1	32	0	0	0	6.7	1.3
DAL	5623	0	2	2.0	0.5	5439	0	2	0	7.8	1.4
DHL	209	2	18	3.8	-1.5	210	0	100	0	8.8	0.3
DLH	3305	0	5	2.0	-0.2	3255	0	10	5	7.0	1.2
DOA	201	0	13	1.3	-0.1	202	0	14	1	6.8	1.8
EIA	79	0	9	1.9	0.0	80	0	9	0	9.3	2.1
EIN	47	0	9	2.7	1.0	48	0	6	0	7.7	1.5
ELY	122	0	7	2.0	-0.1	124	0	5	0	7.9	2.0

	TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
EVA	1385	0	2	1.9	-0.7	1383	0	2	0	8.2	1.4
FDX	886	0	2	2.0	0.5	895	0	2	1	7.7	1.5
FIN	588	0	2	2.1	0.6	589	0	4	2	7.9	1.6
FJI	409	2	3	2.5	1.0	409	0	2	0	10.8	1.3
FKC	20	5	5	2.2	-0.5	20	0	5	0	13.6	2.1
GAF	90	0	1	2.2	-0.4	89	0	1	0	8.0	0.8
GIA	263	1	2	1.9	0.1	262	0	2	2	7.5	1.5
HAL	1220	0	1	1.4	0.2	1224	0	2	1	7.8	1.1
HLF	135	2	100	1.9	-0.7	134	0	1	0	6.6	2.0
IBE	1895	1	13	1.7	-0.2	1885	0	13	0	8.0	1.4
ICE	413	0	2	1.8	-0.1	412	0	1	0	6.9	1.4
JAA	83	1	2	1.8	0.8	83	0	2	1	7.4	2.2
JAL	5620	0	1	1.8	0.3	5622	0	1	0	8.2	1.2
JAZ	107	0	85	1.7	1.2	107	0	1	0	6.7	0.8
KAL	3137	1	3	2.3	0.3	3136	0	3	1	8.7	1.5
KLM	1954	0	2	1.9	0.2	1969	0	2	1	7.4	1.5
LDA	284	1	100	2.0	-1.3	285	0	6	0	6.6	1.1
LDI	116	0	100	2.1	-1.6	116	0	3	0	8.3	1.9
LIB	125	1	2	1.6	-0.5	127	0	3	2	6.1	0.9
LOT	859	0	2	2.1	0.0	855	0	2	0	7.8	1.0
LTU	732	1	2	1.6	0.2	707	0	3	1	7.0	1.6
LWD	306	0	6	1.7	0.7	324	0	7	1	7.5	2.0
MAH	27	0	4	2.1	-1.7	27	4	11	0	10.8	2.4
MAS	302	1	2	2.0	-0.2	302	0	3	1	9.7	1.6
MDA	175	1	94	2.2	0.3	178	0	1	0	9.3	3.2
MPH	605	0	1	1.7	-0.2	601	0	2	1	7.7	1.8
NAL	106	1	100	2.2	0.7	105	0	2	1	9.4	1.4
NAT	25	8	4	2.0	0.8	25	0	0	0	5.6	0.5
NCA	723	0	1	1.9	0.2	720	0	2	0	8.3	0.7
NGA	113	0	3	2.2	0.4	113	0	5	0	12.3	0.5
NWA	10732	1	2	2.0	0.6	10756	0	3	1	8.6	1.6
OAL	27	0	11	2.3	1.2	30	0	3	0	5.8	-0.1
PAL	1024	1	2	1.7	-0.6	1042	0	5	2	9.5	1.6
PAO	263	1	2	1.6	0.2	262	0	2	1	8.4	1.6
PIA	20	5	10	2.6	0.3	21	5	5	0	6.2	1.6
QFA	1940	1	2	1.8	0.1	1936	0	2	1	7.9	1.4
QFX	32	0	0	1.2	-0.6	32	0	0	0	7.3	1.2
RAF	240	0	1	1.7	-0.2	239	0	1	0	9.1	2.4
RBA	24	0	0	1.0	0.1	24	0	0	0	9.5	3.8
RJA	28	0	4	2.1	0.7	29	0	3	0	7.0	1.8
RKA	46	4	7	1.6	0.5	46	0	2	0	5.9	1.6
RON	60	0	0	1.3	0.6	58	0	2	2	8.7	-0.4
ROT	26	0	8	2.2	-1.0	31	0	10	0	7.6	2.2
ROY	42	0	0	2.9	1.0	43	0	0	0	8.0	2.6
RRR	261	1	20	2.5	-0.1	262	0	19	1	10.4	2.6
SAA	240	0	1	2.1	-0.7	241	0	3	1	8.0	1.3
SAB	62	5	3	1.9	0.2	65	0	2	0	8.3	2.9
SAS	2090	0	1	2.1	-0.2	2086	0	2	1	7.0	0.9
SIA	1230	1	2	1.8	-0.4	1241	0	2	0	9.0	1.6
SJM	76	0	4	2.2	0.2	74	0	4	0	9.0	3.1
SLR	23	0	13	1.6	-0.2	24	0	21	0	12.4	1.8
SOL	39	3	5	1.6	0.6	38	0	8	0	13.3	-0.6
SPP	157	0	3	1.5	0.0	151	0	3	1	8.0	1.1
SVA	58	2	2	1.6	0.0	66	0	5	0	8.8	1.4
SWR	212	0	3	2.0	0.5	211	0	3	0	8.3	1.5
TAP	821	1	2	1.8	-0.2	810	0	3	0	8.3	2.0
THA	304	1	1	1.6	-0.3	309	0	2	0	8.3	1.7
TIH	183	0	1	1.9	0.1	185	0	2	1	6.0	1.0
TOW	76	0	5	2.0	0.4	81	0	6	0	8.2	1.4

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TRA	34	0	3	2.2	0.8	34	0	3	0	5.0	0.7
TSC	168	0	3	2.5	-0.3	171	0	2	0	7.8	2.4
TWA	1651	1	2	1.8	0.2	1652	0	2	0	7.7	1.7
UAL	75941	1	4	1.3	0.1	75980	0	2	0	6.9	0.8
UKR	25	4	100	3.2	2.6	28	4	100	0	17.0	3.5
ULE	185	0	1	1.7	0.4	182	0	1	0	6.8	1.4
UPS	677	0	6	1.6	-0.3	687	0	9	0	8.1	1.1
USA	160	0	2	1.9	-0.3	165	0	2	0	7.7	2.4
USF	21	0	10	1.2	-0.2	21	0	10	0	4.9	0.5
VAL	40	0	5	1.7	-0.6	39	0	10	3	8.6	0.7
VIA	489	0	1	1.4	0.2	489	0	4	2	7.5	1.5
VIR	162	2	2	2.1	-0.6	166	0	3	1	8.1	2.3
VRG	28	4	7	1.5	-0.6	31	0	6	0	11.7	4.6
VSP	90	0	2	2.1	0.6	91	0	0	0	7.2	1.9
WOA	31	0	10	2.1	1.6	31	0	13	0	7.7	1.7
AN	22720	0	1	1.5	0.0	22529	0	1	0	7.2	1.2
BA	19806	0	16	1.7	0.6	19746	0	16	0	7.3	1.3
FJ	38	0	8	2.5	0.6	38	0	5	0	12.6	-1.1
KL	5387	0	69	2.1	1.3	5381	0	7	0	7.2	1.4
LH	681	0	1	2.0	-0.3	677	0	3	1	8.7	2.5
NW	49257	0	3	1.4	0.1	49232	0	2	0	6.7	1.0
QF	12580	0	1	1.3	0.3	12558	0	1	0	6.7	1.1
M	252	4	8	3.5	1.2	253	0	3	0	10.2	3.4
N	446	2	3	2.4	0.0	468	0	1	0	8.5	1.0

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA
JUNE 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3



AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

JUNE 1994

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4

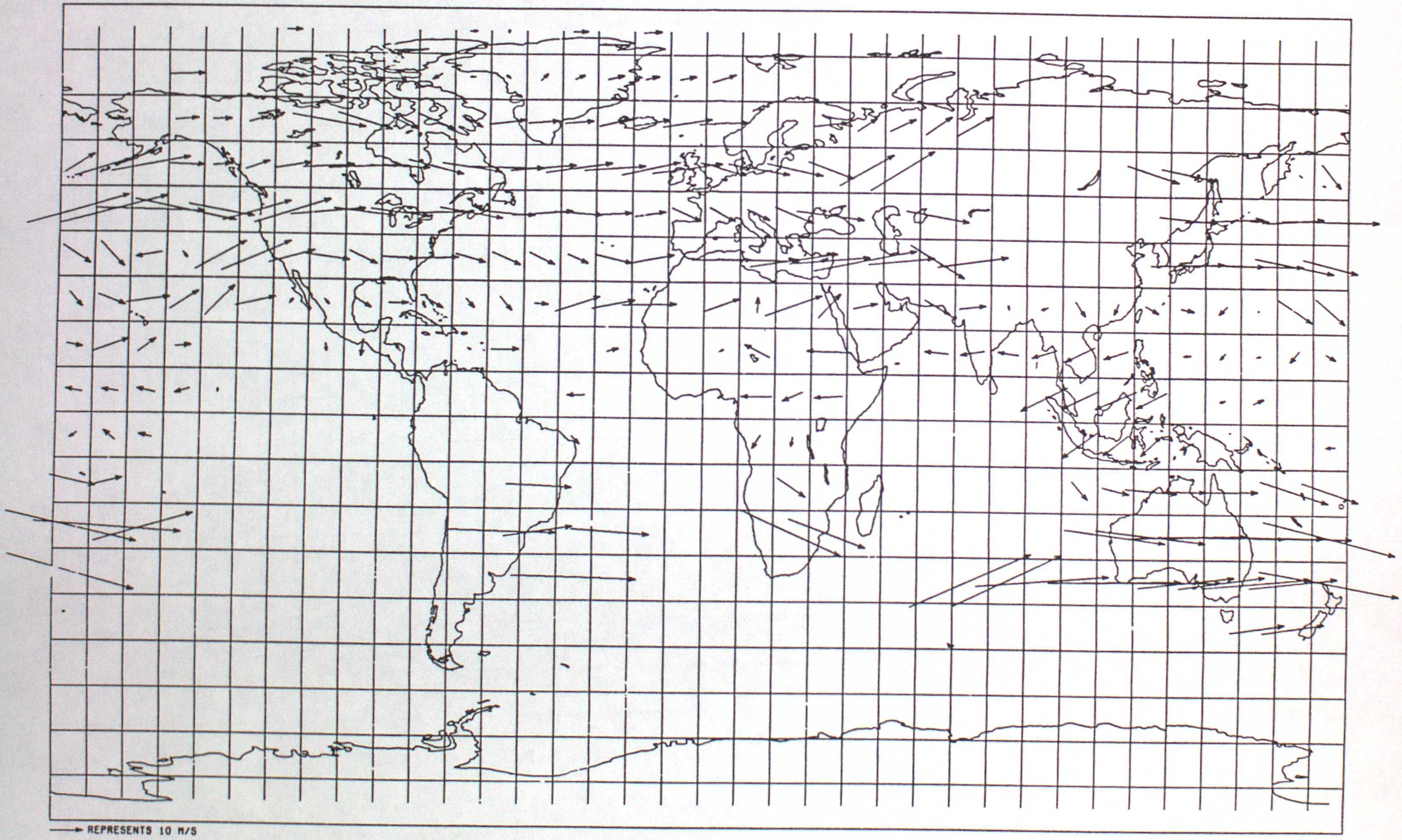
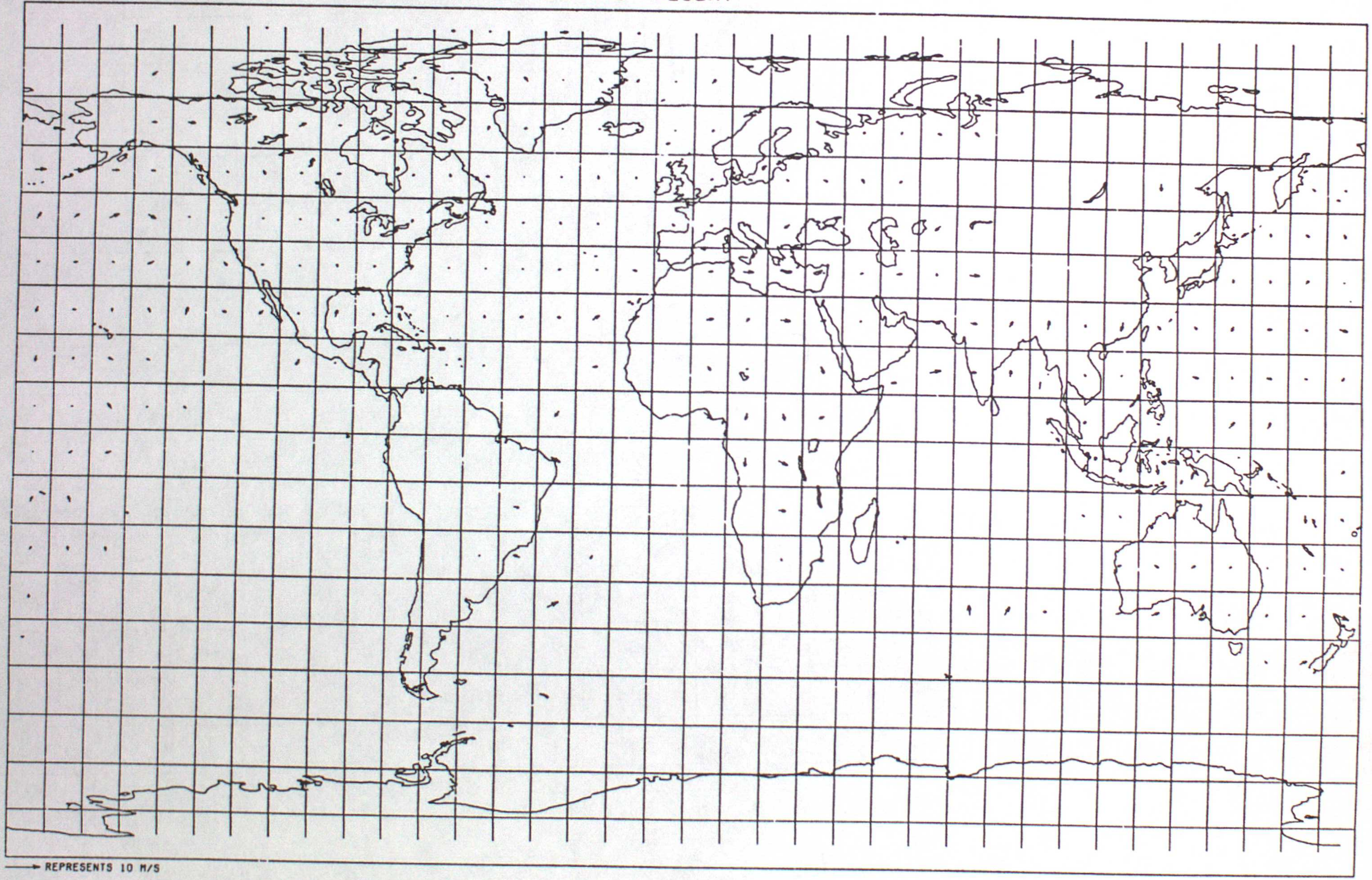
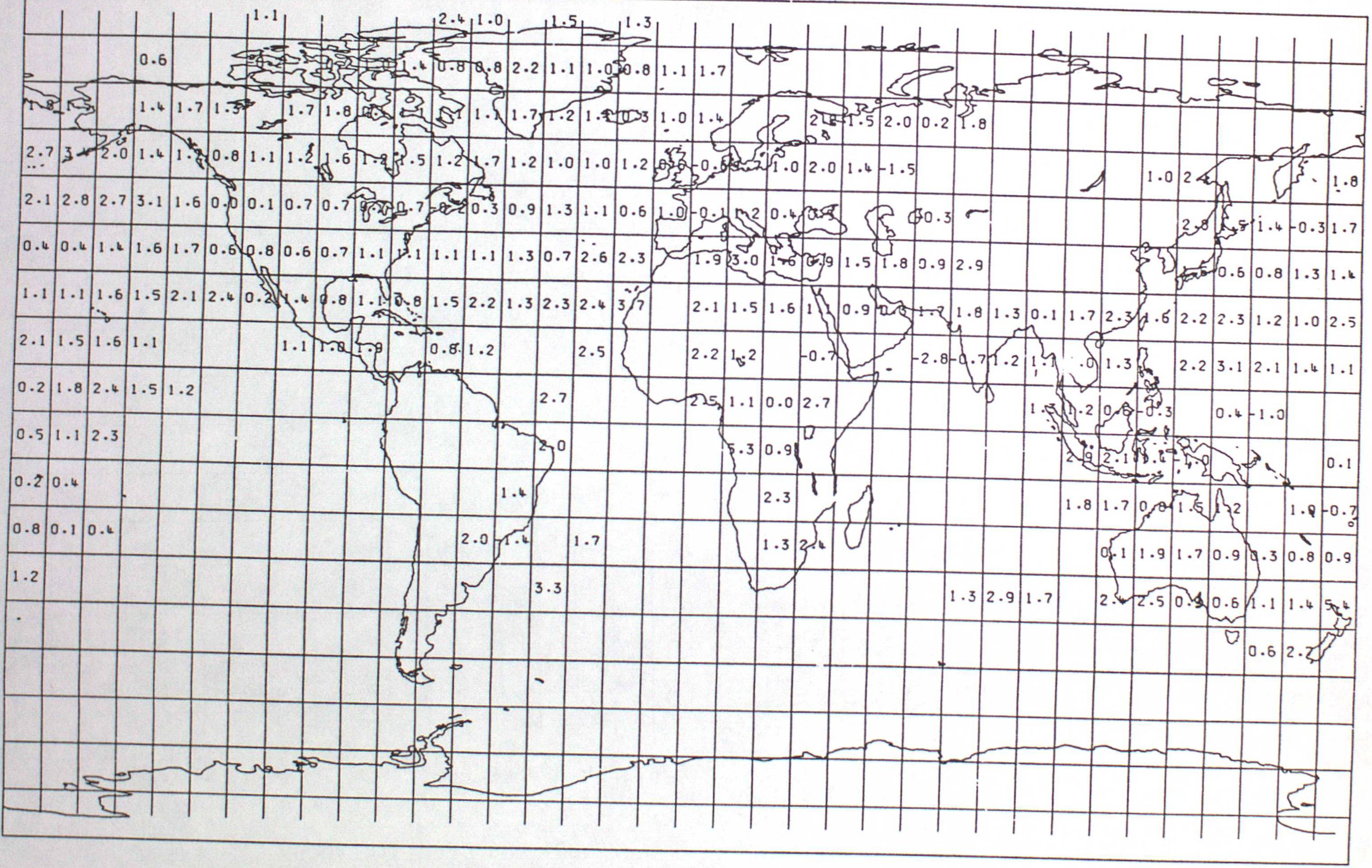


FIGURE 5

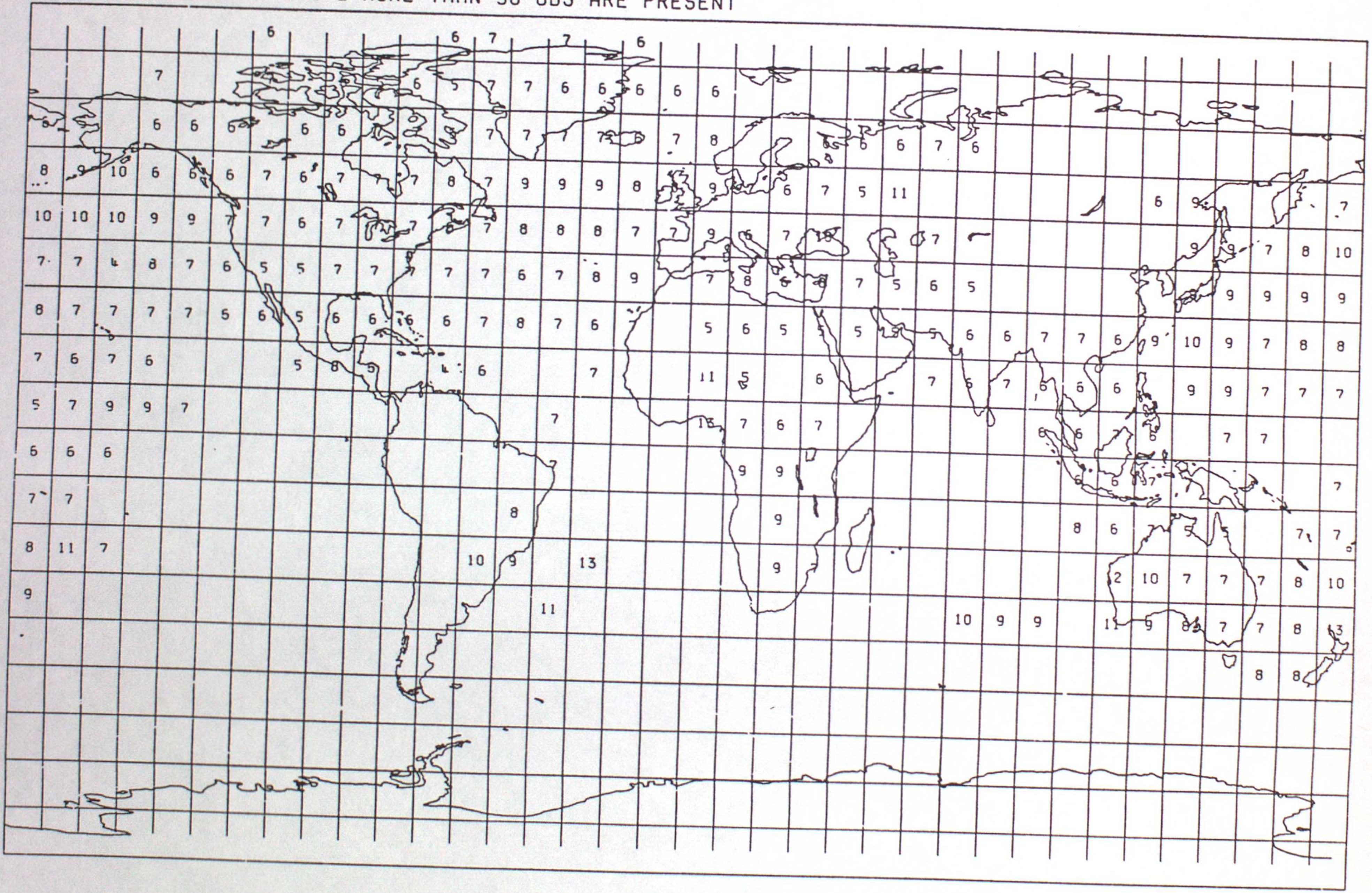
AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA
JUNE 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O-B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
JUNE 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


1.1 2.4 1.0 1.5 1.3
0.6 1.4 0.8 0.8 2.2 1.1 1.0 0.8 1.1 1.7
1.8 1.5 1.4 1.7 1.3 1.7 1.8 1.1 1.1 1.7 1.2 1.3 0.3 1.0 1.4 2.8 1.5 2.0 0.2 1.8
2.7 3.4 2.0 1.4 1.2 0.8 1.1 1.2 1.6 1.2 1.5 1.2 1.7 1.2 1.0 1.0 1.2 0.6 -0.6 -0.7 1.0 2.0 1.4 -1.5 1.0 2.4 1.8
2.1 2.8 2.7 3.1 1.6 0.0 0.1 0.7 0.7 0.2 0.7 -0.2 0.3 0.9 1.3 1.1 0.6 1.0 -0.1 1.2 0.4 0.3 0.3 2.8 1.5 1.4 -0.3 1.7
0.4 0.4 1.4 1.6 1.7 0.6 0.8 0.6 0.7 1.1 1.1 1.1 1.1 1.3 0.7 2.6 2.3 1.9 3.0 1.6 0.9 1.5 1.8 0.9 2.9 0.6 0.8 1.3 1.4
1.1 1.1 1.6 1.5 2.1 2.4 0.2 1.4 0.8 1.1 0.8 1.5 2.2 1.3 2.3 2.4 3.7 2.1 1.5 1.6 1.1 0.9 0.6 1.7 1.8 1.3 0.1 1.7 2.3 1.6 2.2 2.3 1.2 1.0 2.5
2.1 1.5 1.6 1.1 1.1 1.0 1.9 0.8 1.2 2.5 2.2 1.2 -0.7 -2.8 -0.7 1.2 1.1 1.0 1.3 2.2 3.1 2.1 1.4 1.1
0.2 1.8 2.4 1.5 1.2 2.7 2.5 1.1 0.0 2.7 1.3 1.2 0.6 -0.3 0.4 -1.0
0.5 1.1 2.3 2.0 5.3 0.9 2.9 2.1 0.4 -1.0 0.1
0.2 0.4 1.4 2.3 1.8 1.7 0.8 1.5 1.2 1.9 -0.7
0.8 0.1 0.4 2.0 1.4 1.7 1.3 2.4 0.1 1.9 1.7 0.9 0.3 0.8 0.9
1.2 3.3 1.3 2.9 1.7 2.4 2.5 0.9 0.6 1.1 1.4 5.4
0.6 2.2

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
JUNE 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT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7 7 4 8 7 6 5 5 7 7 7 7 7 6 7 8 9 9 9 7 8 10
7 8 6 8 7 5 6 5 9 9 9 9
8 7 7 7 7 5 6 5 6 6 6 7 8 7 6 5 6 5 5 5 6 6 7 7 6 9 10 9 7 8 8
7 6 7 6 5 8 5 4 6 7 11 5 6 7 6 7 6 6 6 9 9 7 7 7
5 7 9 9 7 7 13 7 6 7 6 6 7 6 7 7
6 6 6 9 9 6 6 7 7
7 7 8 9 8 6 7 7 7
8 11 7 10 9 13 9 2 10 7 7 7 8 10
9 11 10 9 9 11 9 8 7 7 8 13
8 8

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA :≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
15480	00	Z	70	44/ 29	12	1	92.6	151.2	177.3	4
23418	00	Z	250	65/ 57	12	1	47.9	84.3	97.0	5
23418	12	Z	250	65/ 57	12	0	66.6	64.0	92.4	5
42027	00	Z	30	34/ 75	7	6	81.0	290.1	301.2	9
42027	12	Z	100	34/ 75	9	4	49.4	206.1	211.9	6
42101	00	Z	30	30/ 76	8	2	122.3	233.4	263.5	9
42101	12	Z	30	30/ 76	3	8	153.0	312.3	347.8	9
42182	00	Z	100	29/ 77	21	6	108.3	98.0	146.0	7
42182	12	Z	70	29/ 77	16	7	96.6	260.2	277.6	8
42314	00	Z	200	27/ 95	14	0	108.4	6.6	108.6	4
42339	00	Z	200	26/ 73	15	1	109.5	38.1	116.0	9
42339	12	Z	50	26/ 73	11	5	91.8	250.8	267.1	9
42361	00	Z	30	26/ 78	8	2	133.8	225.0	261.8	9
42361	12	Z	150	26/ 78	15	2	118.7	68.9	137.3	9
42369	00	Z	150	27/ 81	18	2	93.2	125.4	156.3	7
42369	12	Z	150	27/ 81	19	1	109.5	89.3	141.3	5
42379	00	Z	70	27/ 83	22	1	188.3	111.5	218.8	10
42379	12	Z	150	27/ 83	22	1	107.1	106.5	151.0	10
42397	12	Z	200	27/ 88	16	0	111.3	-8.1	111.6	6
42410	00	Z	30	26/ 92	11	2	175.6	190.8	259.4	7
42410	12	Z	100	26/ 92	22	2	155.8	55.2	165.3	8
42492	00	Z	50	26/ 85	16	0	170.5	90.2	192.9	5
42492	12	Z	150	26/ 85	15	1	111.0	89.7	142.7	6
42647	12	Z	100	23/ 73	7	5	110.5	135.3	174.7	5
42667	00	Z	200	23/ 77	16	0	116.0	26.0	118.9	5
42667	12	Z	200	23/ 77	13	0	97.2	77.1	124.1	5
42701	00	Z	100	23/ 85	13	1	133.5	18.4	134.8	4
42724	00	Z	150	24/ 91	14	1	144.6	21.5	146.2	7
42809	00	Z	70	23/ 88	15	4	171.8	92.4	195.1	8
42809	12	Z	50	23/ 88	11	2	142.3	195.9	242.1	7
42867	00	Z	50	21/ 79	10	1	186.5	81.7	203.6	6
42867	12	Z	30	21/ 79	14	0	135.9	182.1	227.2	6
42875	12	Z	200	21/ 82	10	0	92.5	24.3	95.7	4
42971	00	Z	30	20/ 86	11	0	176.2	201.7	267.8	7
42971	12	Z	150	20/ 86	20	1	124.9	57.6	137.5	7
43003	00	Z	200	19/ 73	25	1	123.1	33.0	127.5	7
43003	12	Z	200	19/ 73	21	2	114.0	79.3	138.9	7
43014	00	Z	150	20/ 75	19	2	147.1	-3.7	147.2	6
43014	12	Z	200	20/ 75	18	0	100.7	-5.4	100.8	6
43128	00	Z	100	17/ 78	21	2	152.9	-19.0	154.0	6
43128	12	Z	200	17/ 78	24	1	89.2	74.5	116.3	8
43150	00	Z	50	18/ 83	14	0	184.5	14.7	185.1	5
43150	12	Z	100	18/ 83	23	0	136.6	9.3	136.9	8
43185	00	Z	50	16/ 81	9	3	118.9	162.4	201.3	6
43185	12	Z	70	16/ 81	9	2	115.2	174.2	208.9	8
43192	00	Z	70	15/ 74	11	0	164.5	-12.6	165.0	6
43192	12	Z	100	15/ 74	11	1	105.4	131.5	168.5	5
43279	00	Z	30	13/ 80	11	1	206.7	110.5	234.4	7
43279	12	Z	100	13/ 80	23	0	128.2	-1.6	128.2	6
43285	00	Z	70	13/ 75	16	0	201.5	-23.4	202.9	6
43285	12	Z	150	13/ 75	17	0	128.0	63.8	143.0	8
43295	00	Z	30	13/ 78	10	1	109.4	239.6	263.4	7
43295	12	Z	100	13/ 78	12	2	85.2	151.2	173.6	5
43333	12	Z	50	12/ 93	12	0	184.5	37.3	188.2	8
43346	00	Z	70	11/ 80	17	0	200.9	-18.7	201.7	6
43346	12	Z	70	11/ 80	17	1	161.9	108.9	195.1	6
43369	00	Z	50	8/ 73	14	0	147.5	-96.1	176.0	7
43369	12	Z	70	8/ 73	15	0	205.5	25.3	207.1	7
43371	00	Z	50	8/ 77	16	2	180.6	-86.9	200.4	7
43371	12	Z	70	8/ 77	17	6	203.2	22.6	204.5	9

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
44373	12	Z	200	44/ 104	12	0	39.1	172.3	176.7	6
50527	00	Z	200	49/ 120	27	0	69.3	71.2	99.3	5
50527	12	Z	70	49/ 120	26	0	91.7	109.7	143.0	7
50774	00	Z	200	48/ 129	29	0	28.2	82.6	87.3	8
50774	12	Z	200	48/ 129	28	0	24.7	83.0	86.6	7
52267	00	Z	70	42/ 101	30	0	49.8	115.9	126.1	5
52267	12	Z	70	42/ 101	28	0	35.6	139.7	144.2	7
52323	12	Z	70	42/ 97	28	0	41.5	119.4	126.4	4
52836	12	Z	70	36/ 98	24	0	68.8	119.3	137.7	4
53463	00	Z	200	41/ 112	30	0	35.5	75.1	83.1	5
53463	12	Z	70	41/ 112	29	0	40.0	116.1	122.8	4
54102	12	Z	70	44/ 116	26	0	44.6	120.3	128.3	5
54135	00	Z	70	44/ 122	29	0	78.4	120.0	143.3	4
54135	12	Z	70	44/ 122	27	0	86.9	128.6	155.2	7
54218	00	Z	70	42/ 119	28	0	33.2	127.6	131.8	7
54342	00	Z	200	42/ 123	27	0	39.7	97.3	105.1	9
54342	12	Z	100	42/ 123	29	0	57.1	133.8	145.5	8
54497	00	Z	30	40/ 124	18	0	120.4	130.8	177.8	4
54662	00	Z	200	39/ 122	27	0	34.2	85.1	91.7	4
54823	00	Z	150	37/ 117	29	0	26.4	98.9	102.3	5
54823	12	Z	200	37/ 117	29	0	31.0	73.1	79.4	4
56080	12	Z	100	35/ 103	30	0	41.4	128.2	134.8	6
56146	12	Z	30	32/ 100	27	0	77.9	180.6	196.7	5
56294	12	Z	70	31/ 104	26	0	34.3	139.9	144.0	5
56691	12	Z	100	27/ 104	29	0	38.5	124.1	129.9	5
56739	12	Z	100	25/ 98	29	0	44.5	139.3	146.3	5
56778	12	Z	100	25/ 103	25	1	44.8	135.8	143.0	6
56964	12	Z	100	23/ 101	29	0	38.1	120.0	125.9	5
56985	00	Z	100	23/ 103	28	0	39.0	118.4	124.7	4
56985	12	Z	100	23/ 103	29	0	40.6	142.6	148.3	5
57127	12	Z	70	33/ 107	29	0	34.9	126.3	131.0	4
57447	12	Z	100	30/ 109	24	0	47.7	123.2	132.1	5
57516	00	Z	100	30/ 106	17	0	56.1	133.3	144.6	5
57679	00	Z	100	28/ 113	23	0	51.3	161.5	169.4	6
57679	12	Z	100	28/ 113	24	0	39.9	138.9	144.5	5
57816	12	Z	70	26/ 107	27	0	45.3	144.2	151.2	5
57957	00	Z	100	25/ 110	28	0	38.3	145.6	150.6	5
57957	12	Z	100	25/ 110	28	0	46.8	137.5	145.3	6
58027	00	Z	70	34/ 117	27	0	50.6	132.0	141.4	6
58027	12	Z	70	34/ 117	23	0	45.7	126.1	134.2	4
58203	00	Z	100	33/ 116	27	0	33.1	127.4	131.6	7
58203	12	Z	70	33/ 116	26	0	33.9	125.9	130.4	4
58238	12	Z	100	32/ 119	29	0	44.2	108.6	117.3	4
58424	00	Z	100	31/ 117	27	0	41.1	146.9	152.5	8
58424	12	Z	30	31/ 117	18	0	68.1	212.2	222.9	7
58457	00	Z	100	30/ 120	29	0	40.9	112.2	119.4	5
58665	00	Z	100	29/ 121	27	0	27.9	123.5	126.6	5
58665	12	Z	30	29/ 121	11	1	96.8	172.1	197.5	5
58847	00	Z	100	26/ 119	28	0	44.7	142.3	149.1	6
59287	00	Z	100	23/ 113	26	0	34.0	146.9	150.8	4
59287	12	Z	100	23/ 113	25	0	31.3	127.3	131.1	4
59981	00	Z	100	17/ 112	25	0	52.6	110.6	122.4	4
60360	12	Z	700	37/ 8	1	15	0.0	-88.0	88.0	4
62306	12	Z	100	31/ 27	5	7	18.8	259.2	259.9	7
62378	12	Z	70	30/ 31	7	4	43.0	290.1	293.3	6
70414	00	Z	50	53/ 174	10	0	62.7	186.1	196.4	7
82965	12	Z	30	-10/ -56	15	0	88.6	160.3	183.1	4
89009	00	Z	400	-90/ 0	17	1	65.4	44.0	78.8	6
91557	12	Z	700	-18/ 168	12	0	27.6	-56.7	63.0	8
97014	00	Z	200	2/ 125	27	0	46.0	-100.6	110.6	8

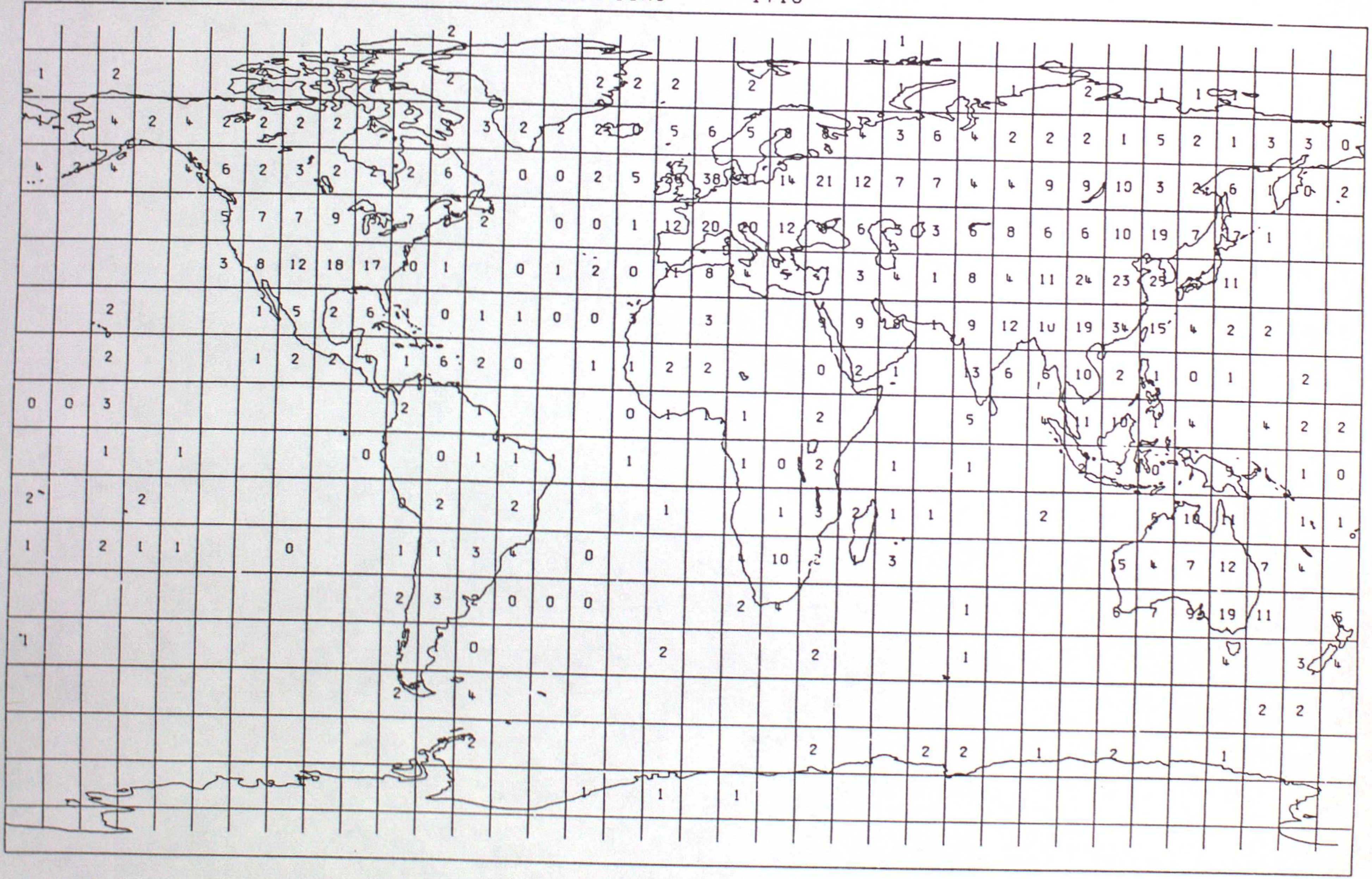
AVAILABILITY - TEMP - 500 HPA GEOPOTENTIAL - JUNE 1994

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1416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4 2 4 4 6 2 3 2 2 2 6 0 0 2 5 29 38 14 21 12 7 7 4 4 9 9 10 3 2 6 1 0 2
5 7 7 9 7 2 0 0 1 12 20 20 12 6 3 3 6 8 6 6 10 19 7 7 1
3 8 12 18 17 10 1 0 1 2 0 11 8 4 5 1 3 4 1 8 4 11 24 23 25 11
2 1 5 2 6 1 0 1 1 0 0 3 3 9 9 8 1 9 12 10 19 34 15 4 2 2
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0 0 3 2 1 0 1 1 1 2 5 4 11 10 1 4 4 2 2
1 1 0 0 1 1 1 1 0 2 1 1 2 3 0 1 0
2 2 0 2 2 1 1 3 2 1 1 2 5 10 11 1 1
1 2 1 1 0 1 1 3 4 0 4 10 2 1 3 5 4 7 12 7 4
2 3 2 0 0 0 2 4 1 6 7 9 19 11 5
1 1 0 2 2 1 4 3 4
2 4 2 2
2 2 2 2 1 2 1
1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	:$\geq$ 10 observations and $\geq$ 15 $m\ s^{-1}$ RMS vector wind.	

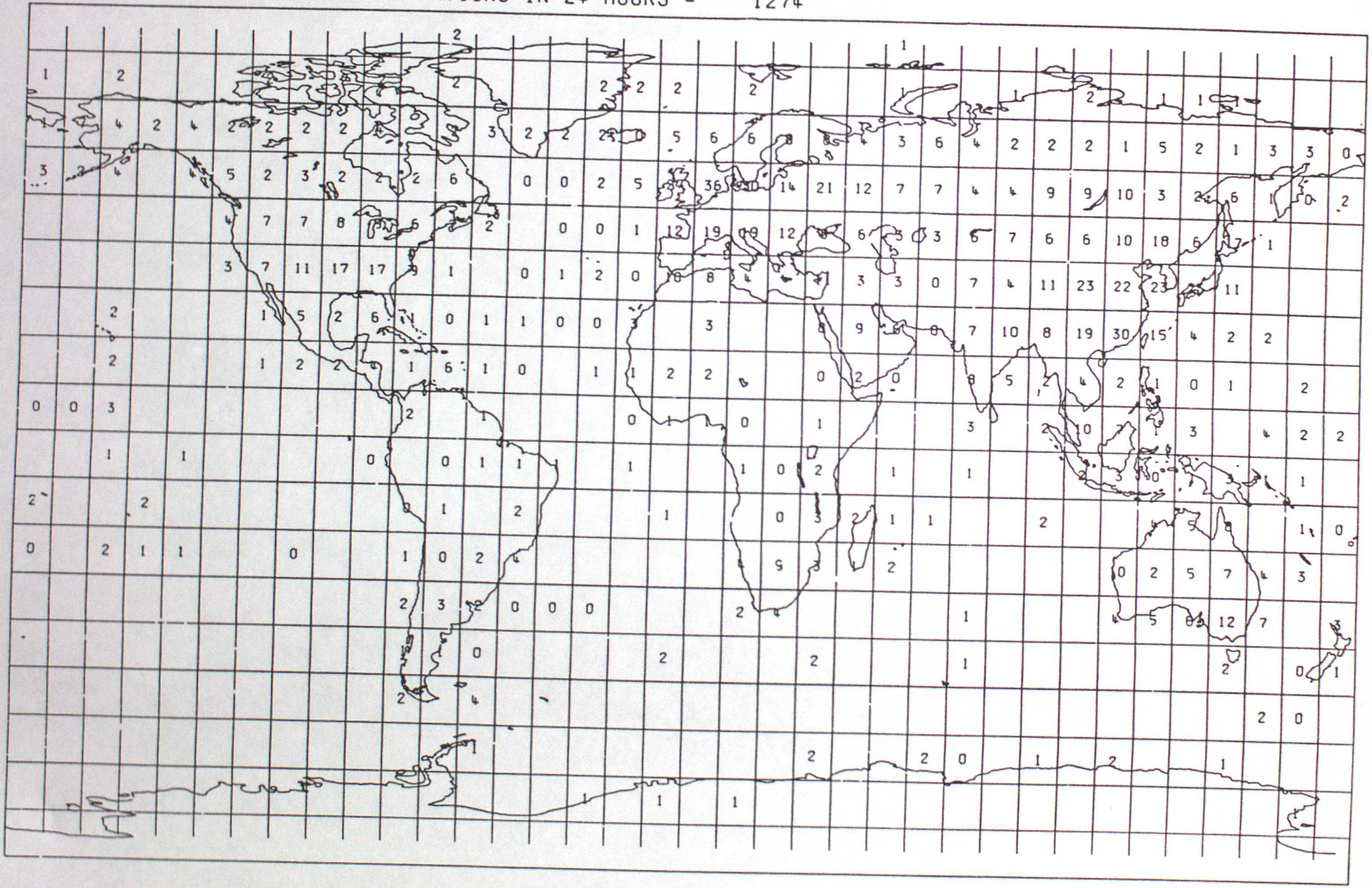
ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
24125	00	V	300	68/ 112	17	0	11	1.4	-3.4	16.7	1
37985	00	V	200	39/ 49	12	0	58	-22.3	-8.8	27.7	3
40265	00	V	100	32/ 36	17	0	5	10.6	6.1	16.7	1
87418	12	V	300	-33/ -69	12	0	100	-1.5	3.4	18.1	1
97980	00	V	400	-8/ 140	10	0	10	2.5	7.4	15.1	1

AVAILABILITY - TEMP/PILOT - 300 HPA WIND - JUNE 1994

FIGURE 9

ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1274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3 4 5 2 3 2 2 2 6 0 0 2 5 36 14 21 12 7 7 4 4 9 9 10 3 2 6 1 0 2
4 7 7 8 6 2 0 0 1 12 19 19 12 6 3 3 6 7 6 6 10 18 6 7 1
3 7 11 17 17 9 1 0 1 2 0 8 4 1 3 3 0 7 4 11 23 22 23 11
2 1 5 2 6 1 0 1 1 0 0 3 3 9 0 7 10 8 19 30 15 4 2 2
2 1 2 2 1 6 1 0 1 1 2 2 0 2 0 8 5 2 4 2 1 0 1 2
0 0 3 2 1 0 1 0 1 3 2 10 3 4 2 2
1 1 0 0 1 1 1 1 0 2 1 1 3 0 1
2 2 1 2 1 0 3 2 1 1 2 4 5 1 0
0 2 1 1 0 1 0 2 4 5 3 2 0 2 5 7 4 3
2 3 2 0 0 0 2 4 1 4 5 0 12 7 3
1 0 2 2 1 2 0 1
2 4
2 0
1 2 2 0 1 2 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.
SELECTION CRITERIA	:NUM OBS ≥ 5, and ABSOLUTE BIAS ≥ 10°, with SD < 30°, and MAX SPREAD < 10°	

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	00	DD	38/ 40	26	-13.7	5.2	15.0
17280	12	DD	38/ 40	27	-14.0	9.3	19.7
24641	00	DD	64/ 122	12	10.1	2.0	8.8
24641	12	DD	64/ 122	11	13.4	6.1	10.5
25123	12	DD	69/ 161	10	15.1	8.8	15.1
42027	00	DD	34/ 75	10	-14.1	4.5	20.8
42339	00	DD	26/ 73	11	19.9	6.6	19.6
42339	12	DD	26/ 73	13	18.1	5.9	18.9
48455	12	DD	14/ 101	17	-14.0	6.4	21.8
48855	00	DD	16/ 108	17	-10.0	9.8	25.4
56571	00	DD	28/ 102	21	-11.2	5.8	27.5
56571	12	DD	28/ 102	24	-10.6	2.4	21.4
56691	00	DD	27/ 104	19	-14.3	6.7	23.3
56691	12	DD	27/ 104	22	-14.2	6.5	23.8
56739	12	DD	25/ 98	17	-13.1	7.1	28.2
56778	12	DD	25/ 103	16	-10.7	8.0	27.8
57516	12	DD	30/ 106	23	-10.2	2.4	17.1
62306	12	DD	31/ 27	10	13.3	5.2	19.3
67083	00	DD	-19/ 47	21	21.5	6.4	20.9
68461	12	DD	-28/ 28	24	10.9	9.1	15.2
78583	12	DD	18/ -88	11	-10.5	7.3	22.5
78866	12	DD	18/ -63	14	14.4	4.5	23.6
83378	00	DD	-16/ -48	20	-11.5	7.8	20.5
83780	00	DD	-24/ -47	23	11.0	3.8	15.7
83780	12	DD	-24/ -47	21	11.4	9.5	18.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer:701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

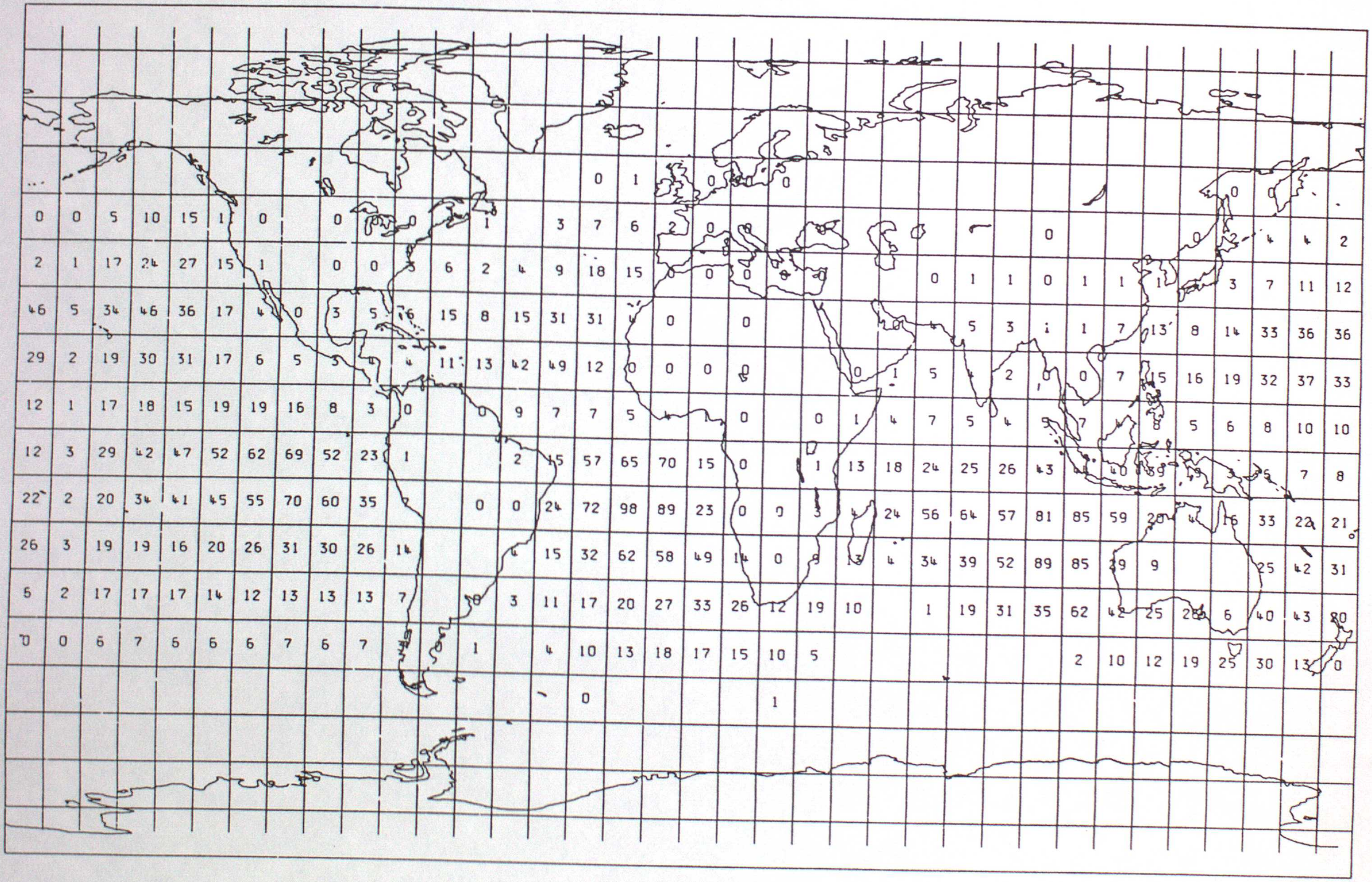
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

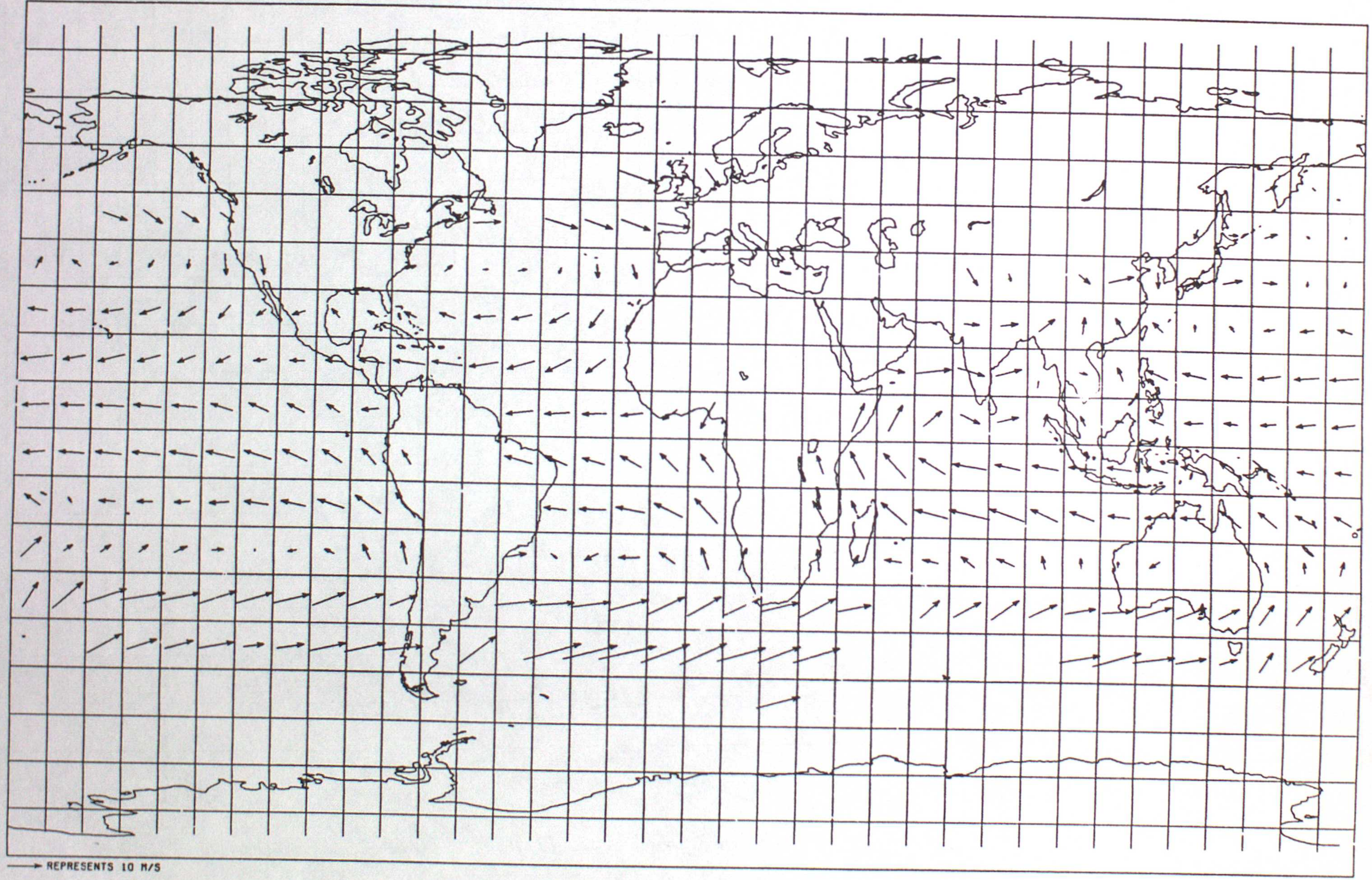
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
JUNE 1994



0 1 0 0 0 0
0 0 5 10 15 1 0 0 0 1 3 7 6 2 0 0 0 0 2 4 4 2
2 1 17 24 27 15 1 0 0 6 2 4 9 18 15 0 0 0 0 0 1 1 0 1 1 1 3 7 11 12
46 5 34 46 36 17 4 0 3 5 6 15 8 15 31 31 4 0 0 4 5 3 1 1 7 13 8 14 33 36 36
29 2 19 30 31 17 6 5 3 4 4 11 13 42 49 12 0 0 0 0 0 1 5 4 2 0 0 7 15 16 19 32 37 33
12 1 17 18 15 19 19 16 8 3 0 0 9 7 7 5 4 1 0 0 1 4 7 5 4 9 7 4 8 5 6 8 10 10
12 3 29 42 47 52 62 69 52 23 1 2 15 57 65 70 15 0 1 13 18 24 25 26 43 4 40 39 19 3 5 7 8
22 2 20 34 41 45 55 70 60 35 0 0 24 72 98 89 23 0 0 3 4 24 56 64 57 81 85 59 20 4 16 33 22 21
26 3 19 19 16 20 26 31 30 26 14 4 15 32 62 58 49 14 0 8 13 4 34 39 52 89 85 39 9 25 42 31
5 2 17 17 17 14 12 13 13 13 7 8 3 11 17 20 27 33 26 12 19 10 1 19 31 35 62 42 25 28 6 40 43 80
0 0 6 7 6 6 6 7 6 7 0 1 4 10 13 18 17 15 10 5 2 10 12 19 25 30 13 0
0 1

SATOB VECTOR MEAN WINDS BETWEEN 701-1000 HPA
JUNE 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11


REPRESENTS 10 M/S

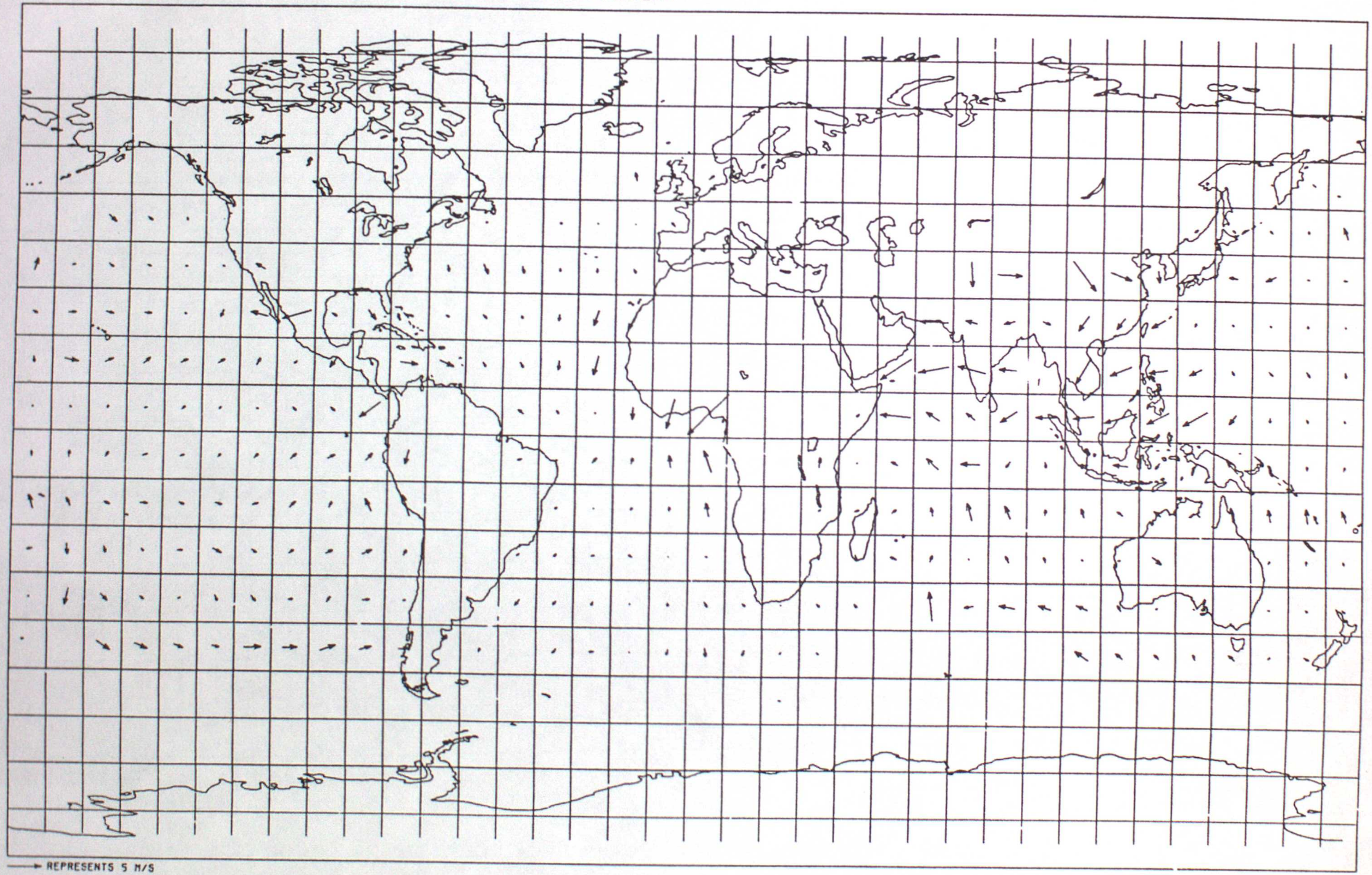
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA

JUNE 1994

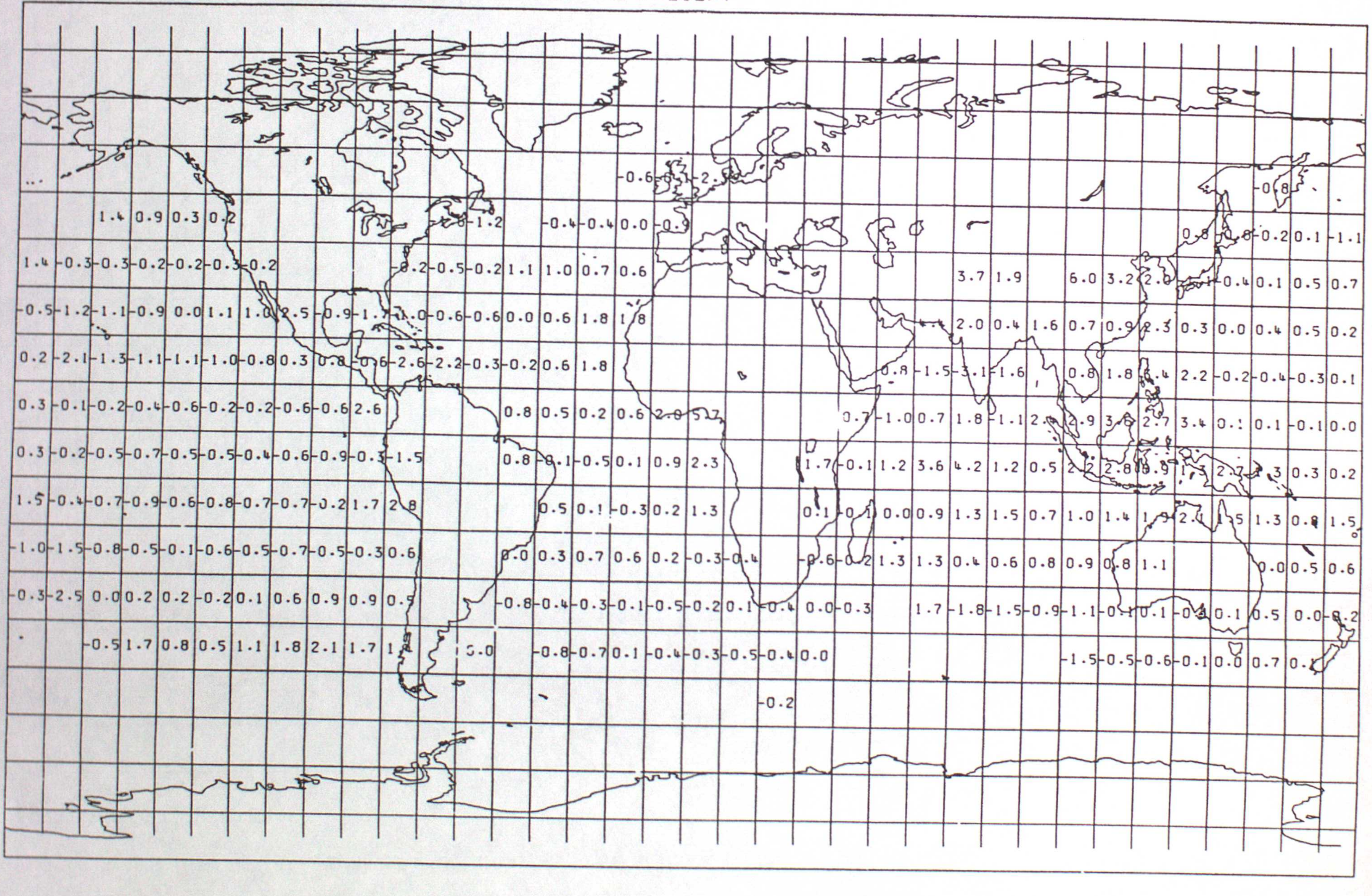
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

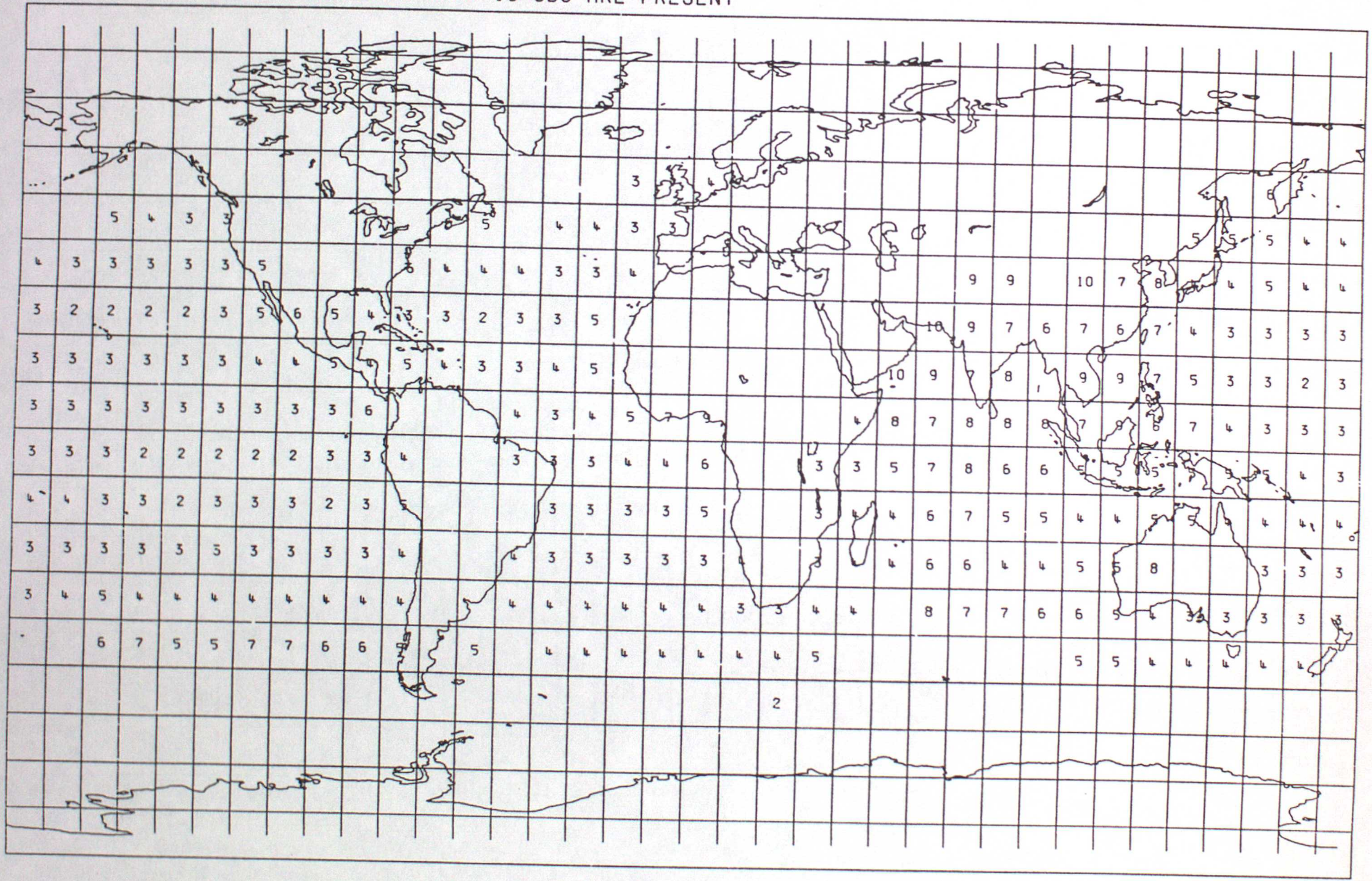
FIGURE 12


→ REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
JUNE 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-0.6 -0.8
1.4 0.9 0.3 0.2 -1.2 -0.4 -0.4 0.0 -0.9 0.8 -0.8 -0.2 0.1 -1.1
1.4 -0.3 -0.3 -0.2 -0.2 -0.3 -0.2 -0.2 -0.5 -0.2 1.1 1.0 0.7 0.6 3.7 1.9 6.0 3.2 2.0 -0.4 0.1 0.5 0.7
-0.5 -1.2 -1.1 -0.9 0.0 1.1 1.0 2.5 -0.9 -1.7 -1.0 -0.6 -0.6 0.0 0.6 1.8 1.8 2.0 0.4 1.6 0.7 0.9 2.3 0.3 0.0 0.4 0.5 0.2
0.2 -2.1 -1.3 -1.1 -1.1 -1.0 -0.8 0.3 0.8 -0.6 -2.6 -2.2 -0.3 -0.2 0.6 1.8 0.8 -1.5 -3.1 -1.6 0.8 1.8 6.4 2.2 -0.2 -0.4 -0.3 0.1
0.3 -0.1 -0.2 -0.4 -0.6 -0.2 -0.2 -0.6 -0.6 2.6 0.8 0.5 0.2 0.6 2.0 5.7 0.7 -1.0 0.7 1.8 -1.1 2.4 2.9 3.6 2.7 3.4 0.1 0.1 -0.1 0.0
0.3 -0.2 -0.5 -0.7 -0.5 -0.5 -0.4 -0.6 -0.9 -0.3 -1.5 0.8 -0.1 -0.5 0.1 0.9 2.3 1.7 -0.1 1.2 3.6 4.2 1.2 0.5 2.2 2.8 0.9 1.3 2.7 1.3 0.3 0.2
1.5 -0.4 -0.7 -0.9 -0.6 -0.8 -0.7 -0.7 -0.2 1.7 2.8 0.5 0.1 -0.3 0.2 1.3 0.1 -0.1 0.0 0.9 1.3 1.5 0.7 1.0 1.4 1.9 2.1 1.5 1.3 0.8 1.5
-1.0 -1.5 -0.8 -0.5 -0.1 -0.6 -0.5 -0.7 -0.5 -0.3 0.6 0.0 0.3 0.7 0.6 0.2 -0.3 -0.4 -0.6 -0.2 1.3 1.3 0.4 0.6 0.8 0.9 0.8 1.1 0.0 0.5 0.6
-0.3 -2.5 0.0 0.2 0.2 -0.2 0.1 0.6 0.9 0.9 0.5 -0.8 -0.4 -0.3 -0.1 -0.5 -0.2 0.1 -0.4 0.0 -0.3 1.7 -1.8 -1.5 -0.9 -1.1 -0.1 0.1 -0.3 0.1 0.5 0.0 -0.2
-0.5 1.7 0.8 0.5 1.1 1.8 2.1 1.7 0.0 -0.8 -0.7 0.1 -0.4 -0.3 -0.5 -0.4 0.0 -1.5 -0.5 -0.6 -0.1 0.0 0.7 0.1
-0.2

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
JUNE 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
JUNE 1994

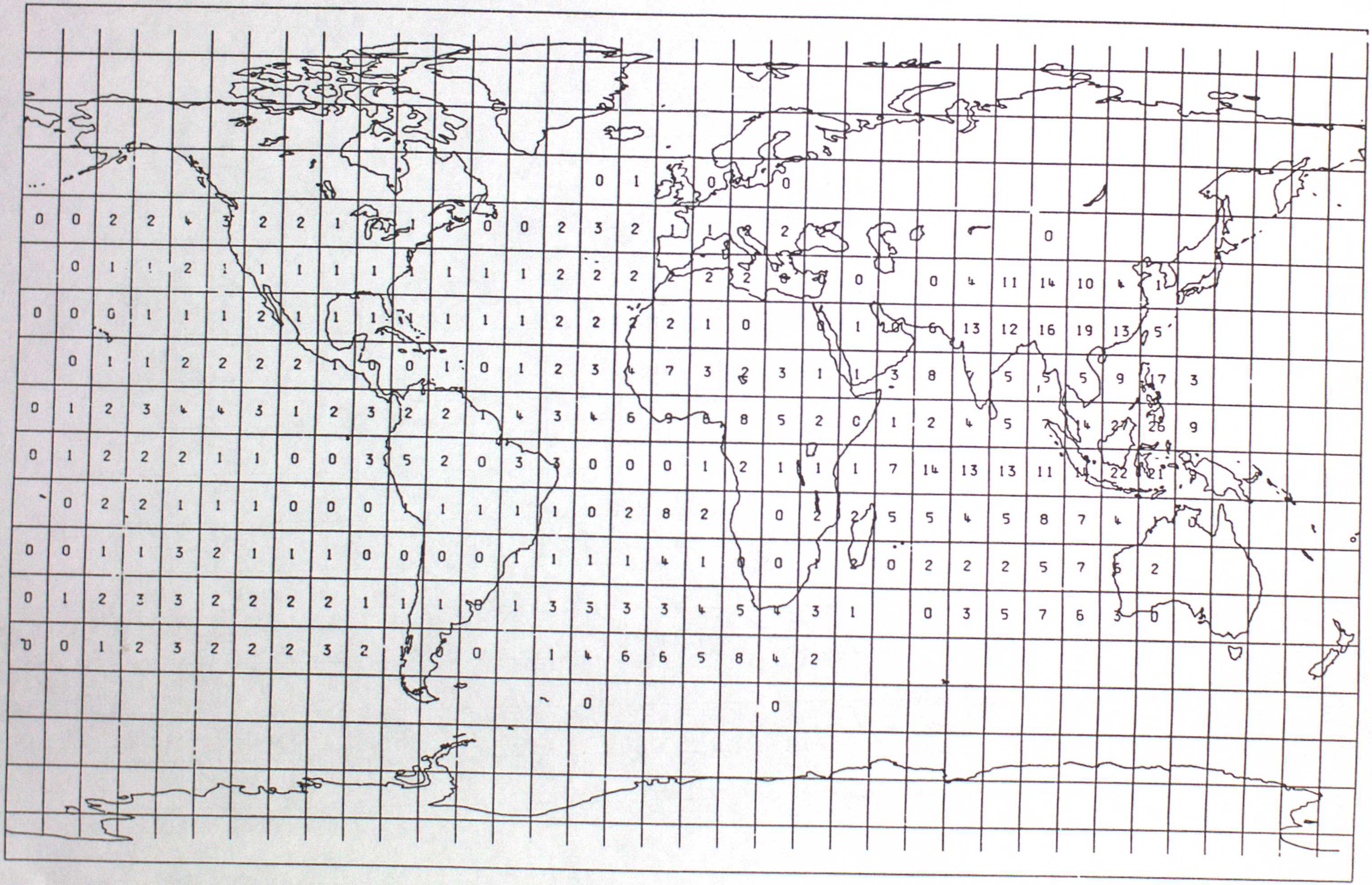
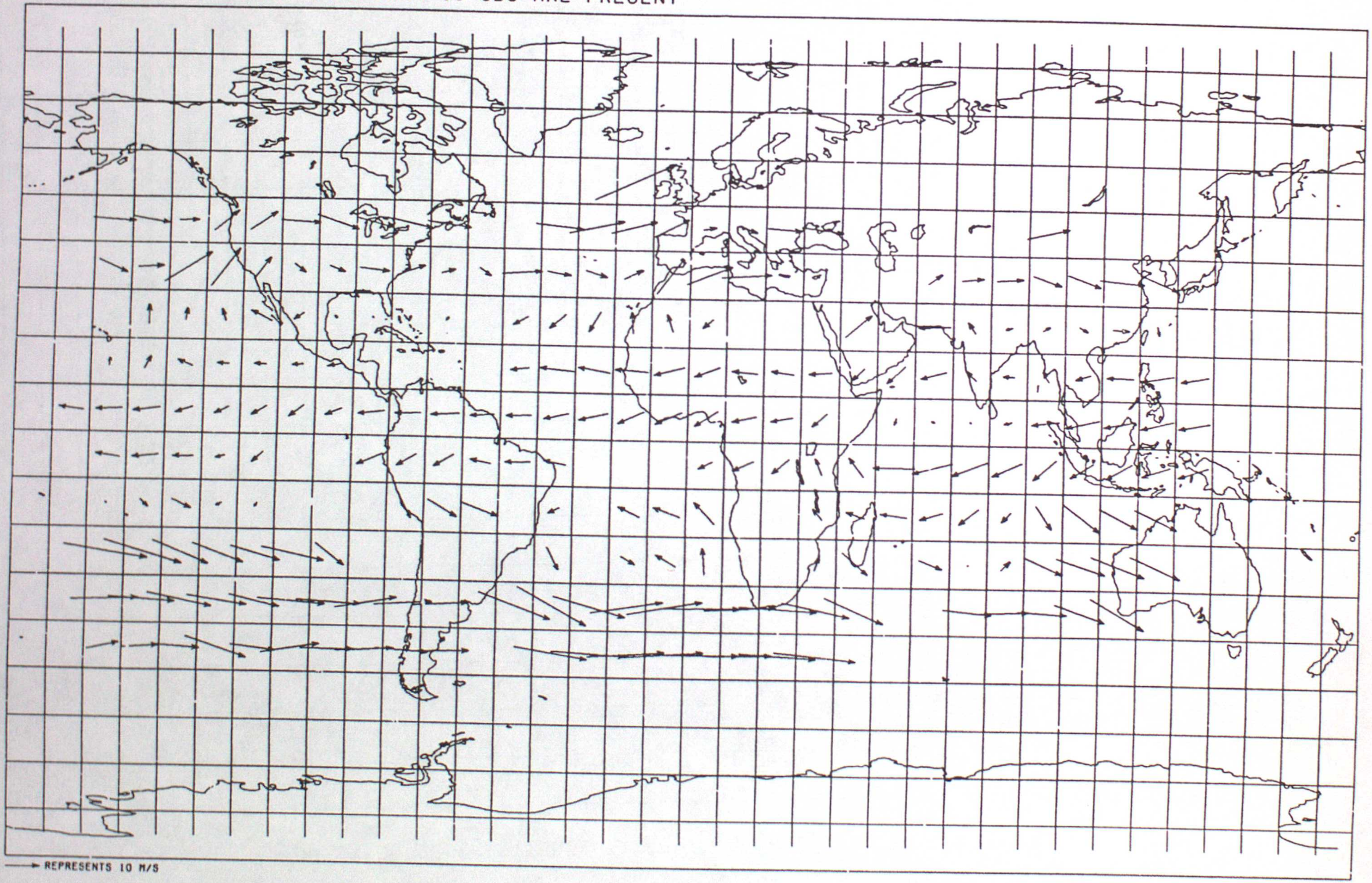

0 1 0 0
0 0 2 2 4 3 2 2 1 1 0 0 2 3 2 1 1 2 0
0 1 1 2 1 1 1 1 1 1 1 1 1 2 2 2 2 2 0 0 0 4 11 14 10 4 1
0 0 0 1 1 1 2 1 1 1 1 1 1 1 2 2 2 2 1 0 0 1 0 6 13 12 16 19 13 5
0 1 1 2 2 2 2 1 0 0 1 0 1 2 3 4 7 3 2 3 1 1 3 8 7 5 5 5 9 17 3
0 1 2 3 4 4 3 1 2 3 2 2 1 4 3 4 6 9 8 8 5 2 0 1 2 4 5 7 14 27 26 9
0 1 2 2 2 1 1 0 0 3 5 2 0 3 3 0 0 0 1 2 1 1 1 7 14 13 13 11 14 22 21
0 2 2 1 1 1 0 0 0 1 1 1 1 1 0 2 8 2 0 2 2 5 5 4 5 8 7 4 0
0 0 1 1 3 2 1 1 1 0 0 0 0 1 1 1 1 4 1 0 0 1 2 0 2 2 2 5 7 5 2
0 1 2 3 3 2 2 2 2 1 1 1 0 1 3 3 3 3 4 5 4 3 1 0 3 5 7 6 3 0
0 0 1 2 3 2 2 2 3 2 1 0 0 1 4 6 6 5 8 4 2
0 0

FIGURE 16

SATOB VECTOR MEAN WINDS BETWEEN 401-700 HPA
JUNE 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

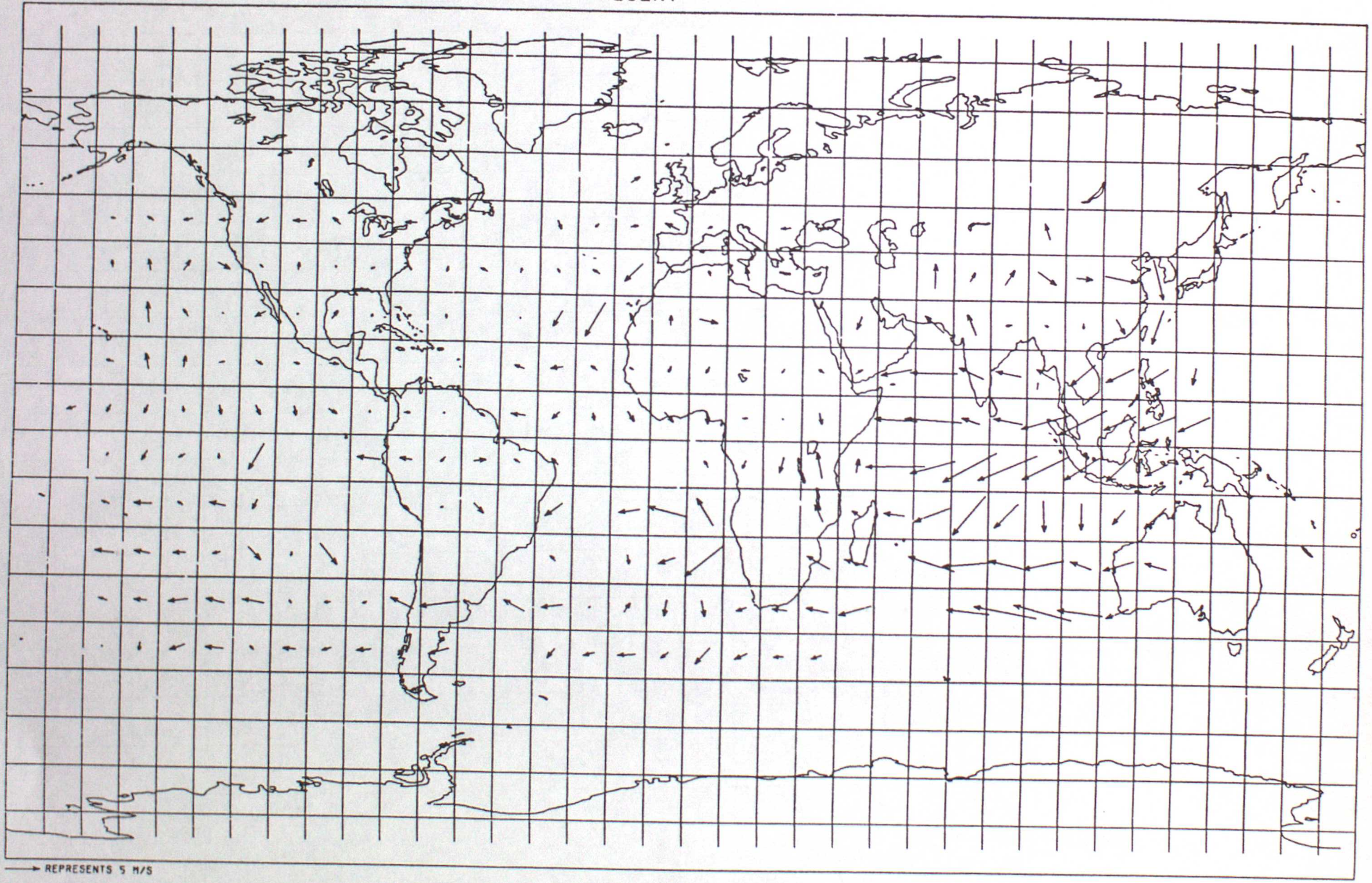
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA

JUNE 1994

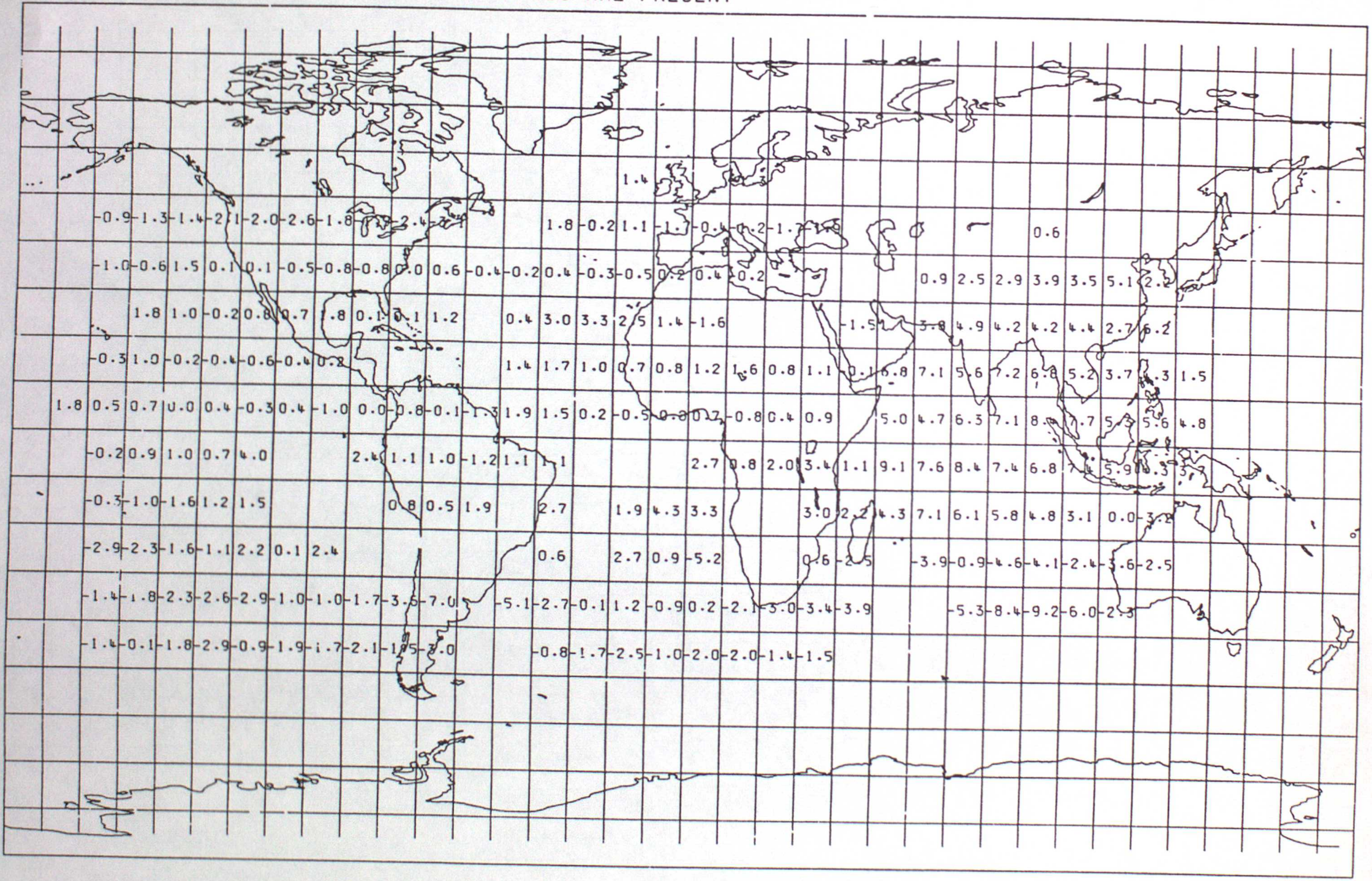
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

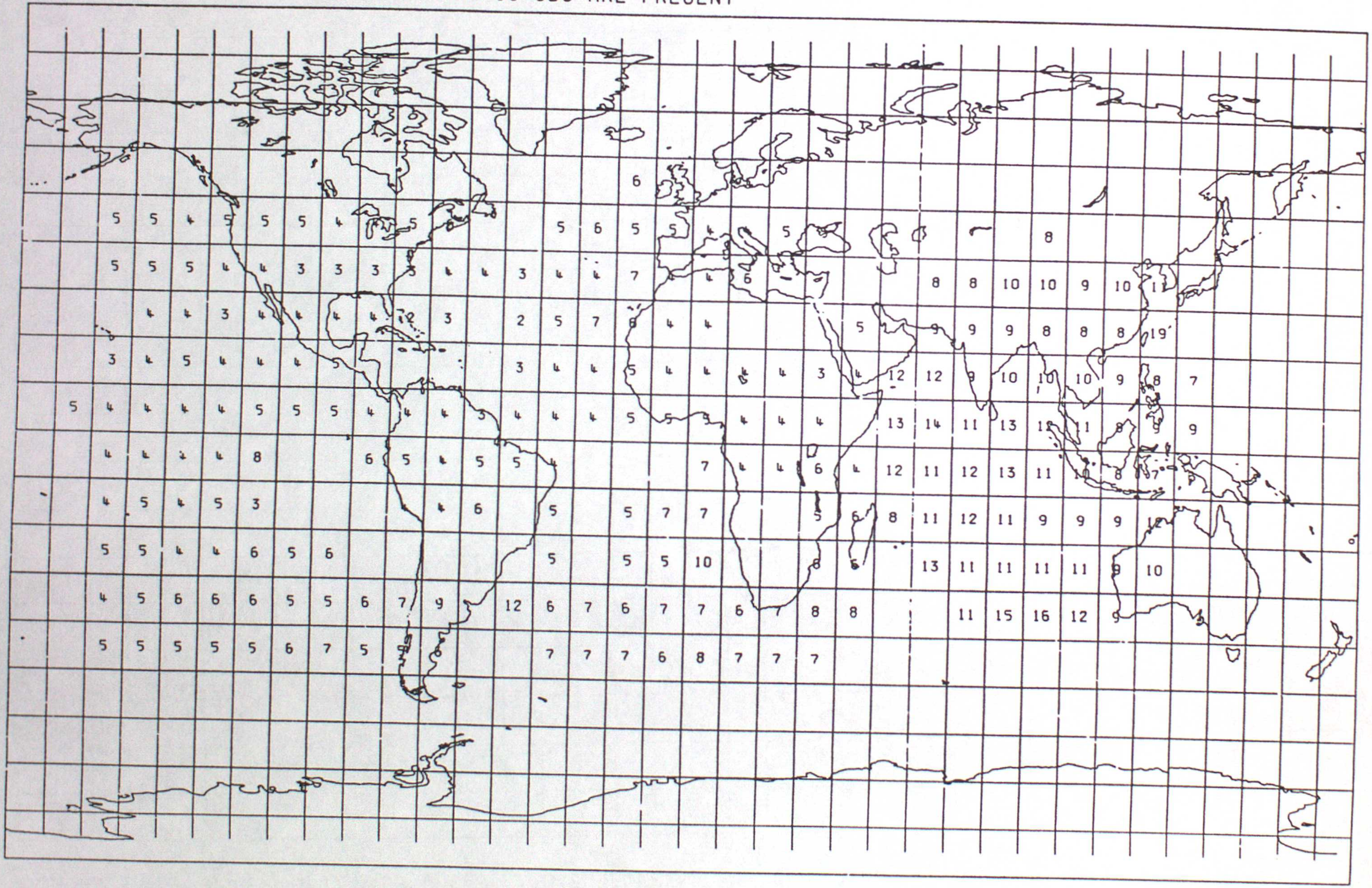
FIGURE 17


→ REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
JUNE 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.4
-0.9 -1.3 -1.4 -2.1 -2.0 -2.6 -1.8 -2.4 1.8 -0.2 1.1 -1.7 -0.4 -0.2 -1.7 0.6
-1.0 -0.6 1.5 0.1 0.1 -0.5 -0.8 -0.8 0.0 0.6 -0.4 -0.2 0.4 -0.3 -0.5 0.2 0.4 0.2 0.9 2.5 2.9 3.9 3.5 5.1 2.2
1.8 1.0 -0.2 0.8 0.7 1.8 0.1 0.1 1.2 0.4 3.0 3.3 2.5 1.4 -1.6 -1.5 3.8 4.9 4.2 4.2 4.4 2.7 6.2
-0.3 1.0 -0.2 -0.4 -0.6 -0.4 0.2 1.4 1.7 1.0 0.7 0.8 1.2 1.6 0.8 1.1 0.1 6.8 7.1 5.6 7.2 6.8 5.2 3.7 4.3 1.5
1.8 0.5 0.7 0.0 0.4 -0.3 0.4 -1.0 0.0 -0.8 -0.1 -1.3 1.9 1.5 0.2 -0.5 0.0 0.7 -0.8 0.4 0.9 5.0 4.7 6.3 7.1 8.4 7.7 5.3 5.6 4.8
-0.2 0.9 1.0 0.7 4.0 2.4 1.1 1.0 -1.2 1.1 1.1 2.7 0.8 2.0 3.4 1.1 9.1 7.6 8.4 7.4 6.8 7.4 5.9 6.3
-0.3 -1.0 -1.6 1.2 1.5 0.8 0.5 1.9 2.7 1.9 4.3 3.3 3.0 2.2 4.3 7.1 6.1 5.8 4.8 3.1 0.0 -3.2
-2.9 -2.3 -1.6 -1.1 2.2 0.1 2.4 0.6 2.7 0.9 -5.2 0.6 -2.5 -3.9 -0.9 -4.6 -4.1 -2.4 -3.6 -2.5
-1.4 -1.8 -2.3 -2.6 -2.9 -1.0 -1.0 -1.7 -3.5 -7.0 -5.1 -2.7 -0.1 1.2 -0.9 0.2 -2.1 -3.0 -3.4 -3.9 -5.3 -8.4 -9.2 -6.0 -2.3
-1.4 -0.1 -1.8 -2.9 -0.9 -1.9 -1.7 -2.1 -1.5 -3.0 -0.8 -1.7 -2.5 -1.0 -2.0 -2.0 -1.4 -1.5

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 400 AND 700 HPA FIGURE 19
JUNE 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6
5 5 4 5 5 5 4 5 5 6 5 5 4 5 8
5 5 5 4 4 3 3 3 3 4 4 3 4 4 7 4 6 8 8 10 10 9 10 11
4 4 3 4 4 4 4 2 3 2 5 7 8 4 4 5 9 9 9 8 8 8 19
3 4 5 4 4 4 5 3 4 4 5 4 4 4 4 3 4 12 12 9 10 10 10 9 8 7
5 4 4 4 4 5 5 5 4 4 4 3 4 4 4 5 5 5 4 4 4 13 14 11 13 12 11 8 9 9
4 4 4 4 8 6 5 4 5 5 4 7 4 4 6 4 12 11 12 13 11 10 8 7
4 5 4 5 3 4 6 5 5 7 7 5 6 8 11 12 11 9 9 9 12
5 5 4 4 6 5 6 5 5 5 10 8 5 13 11 11 11 11 9 10
4 5 6 6 6 5 5 6 7 9 12 6 7 6 7 7 6 7 8 8 11 15 16 12 9
5 5 5 5 5 6 7 5 6 7 7 7 6 8 7 7 7

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
JUNE 1994

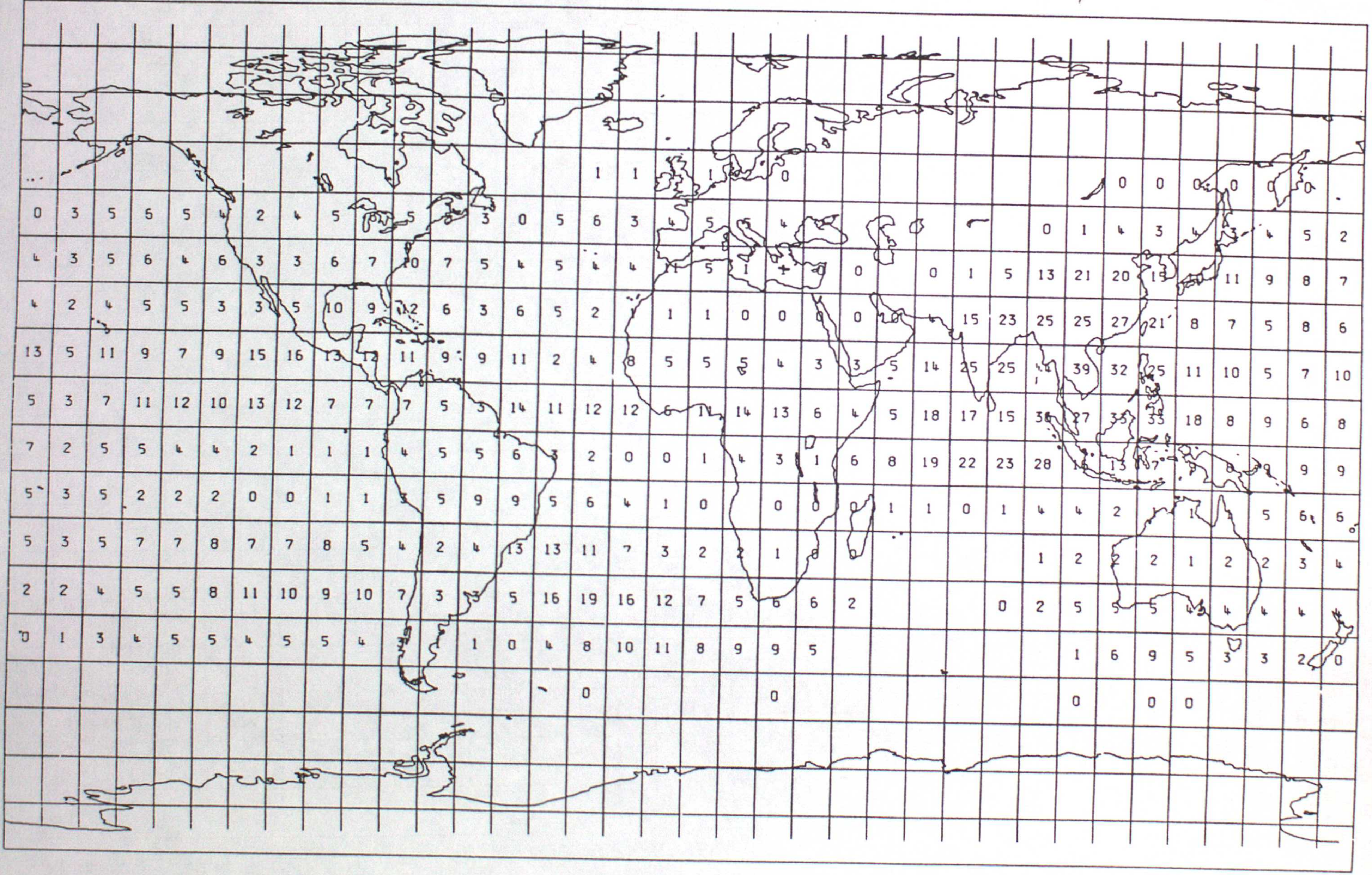
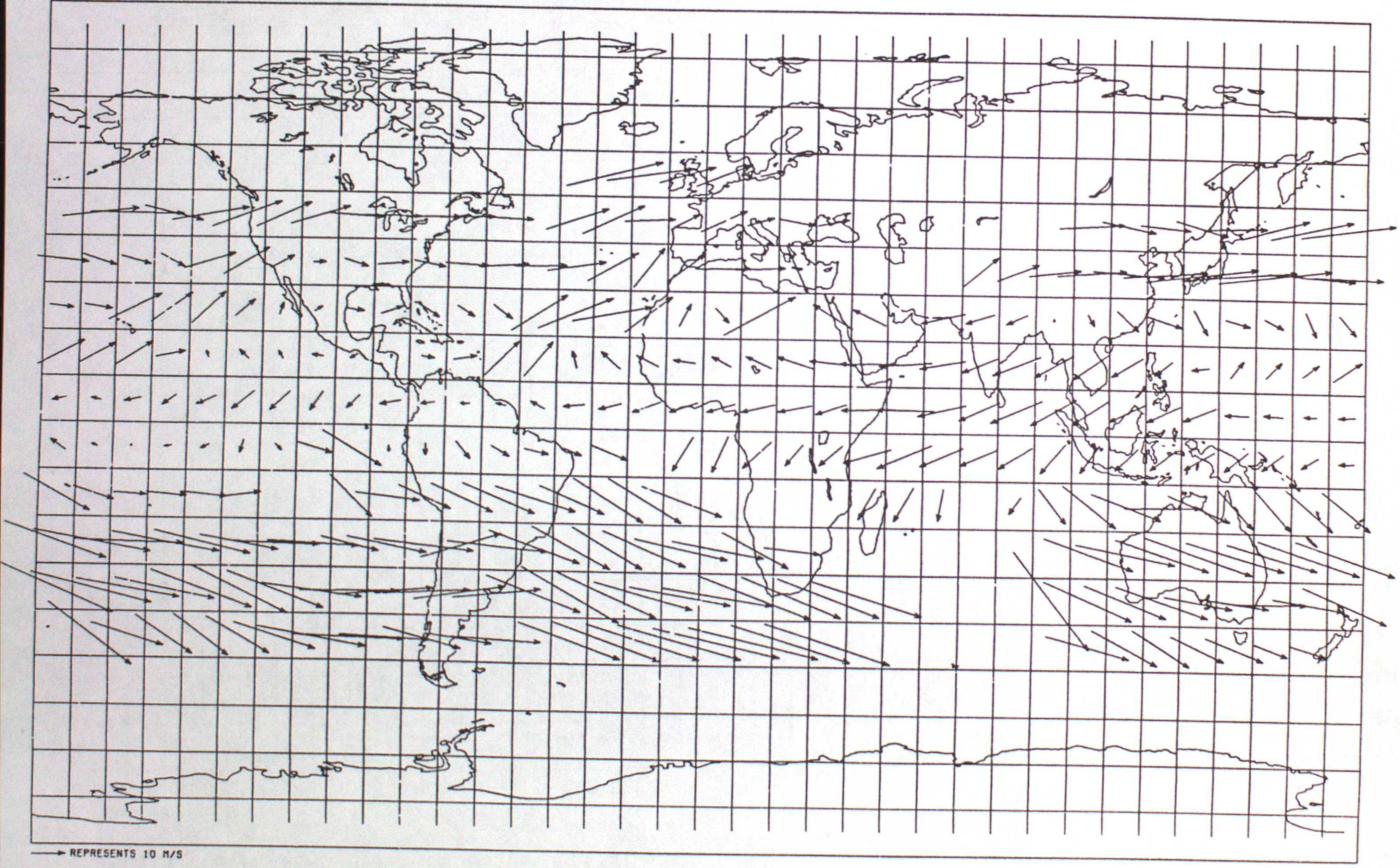

1 1 1 0 0 0 0 0 0 0
0 3 5 6 5 4 2 4 5 5 5 3 0 5 6 3 4 5 5 4 0 1 4 3 4 3 4 5 2
4 3 5 6 4 6 3 3 6 7 10 7 5 4 5 4 4 11 5 1 0 0 0 1 5 13 21 20 15 11 9 8 7
4 2 4 5 5 3 3 5 10 9 12 6 3 6 5 2 1 1 0 0 0 0 0 4 15 23 25 25 27 21 8 7 5 8 6
13 5 11 9 7 9 15 16 13 12 11 9 9 11 2 4 8 5 5 5 4 3 3 5 14 25 25 4 39 32 25 11 10 5 7 10
5 3 7 11 12 10 13 12 7 7 7 5 3 14 11 12 12 6 11 14 13 6 4 5 18 17 15 36 27 33 33 18 8 9 6 8
7 2 5 5 4 4 2 1 1 1 4 5 5 6 3 2 0 0 1 4 3 1 6 8 19 22 23 28 13 13 7 9 8 9 9 9
5 3 5 2 2 2 0 0 1 1 3 5 9 9 5 6 4 1 0 0 0 0 1 1 0 1 4 4 2 1 1 5 6 6
5 3 5 7 7 8 7 7 8 5 4 2 4 13 13 11 7 3 2 2 1 0 1 2 2 2 1 2 2 3 4
2 2 4 5 5 8 11 10 9 10 7 3 3 5 16 19 16 12 7 5 6 6 2 0 2 5 5 5 4 4 4 4
0 1 3 4 5 5 4 5 5 4 3 1 1 0 4 8 10 11 8 9 9 5 1 6 9 5 3 3 2 0
0 0 0 0 0

FIGURE 21

SATOB VECTOR MEAN WINDS BETWEEN 101-400 HPA
JUNE 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

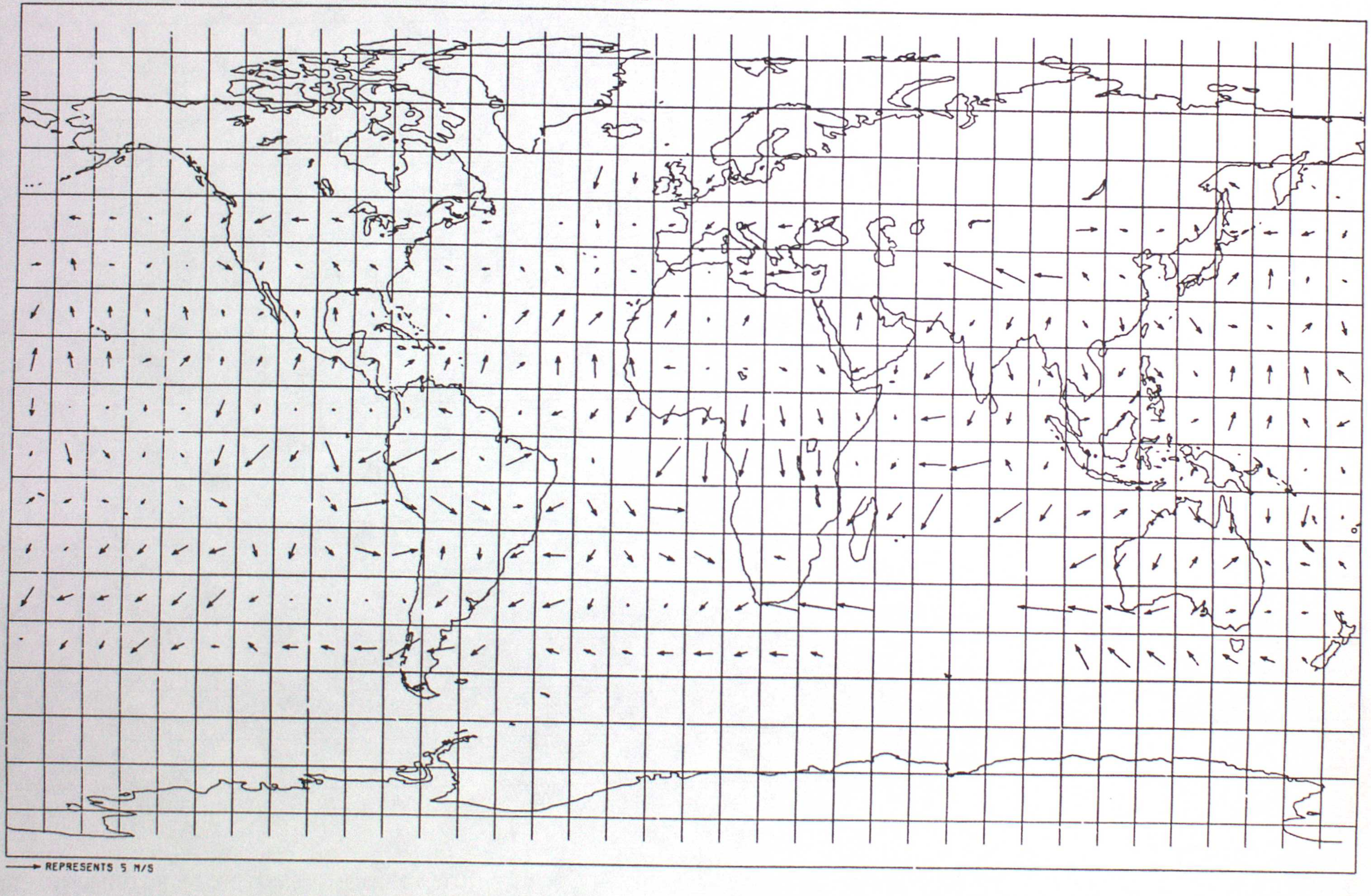
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

FIGURE 22

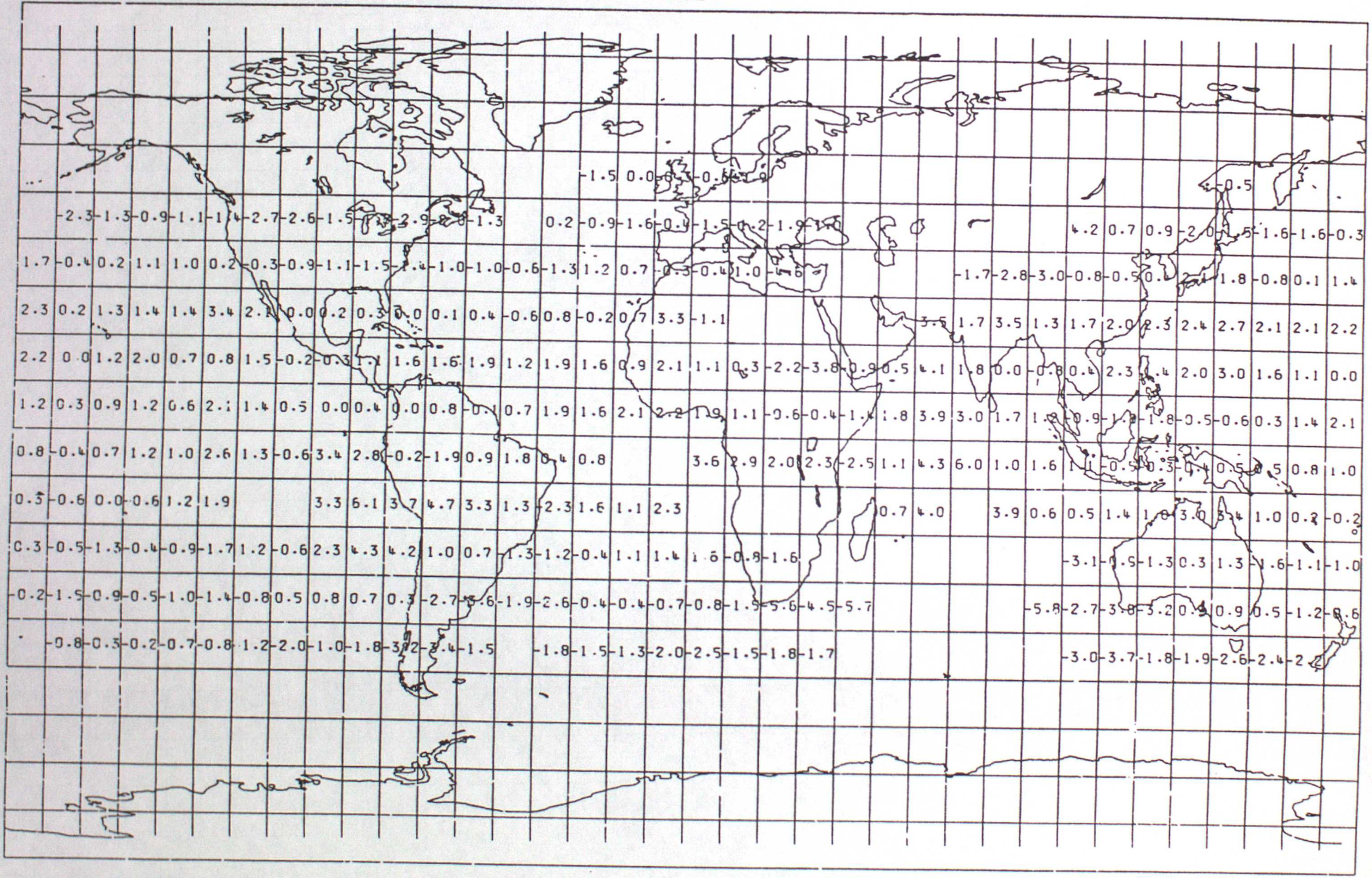
JUNE 1994

ALL OBSERVATIONS

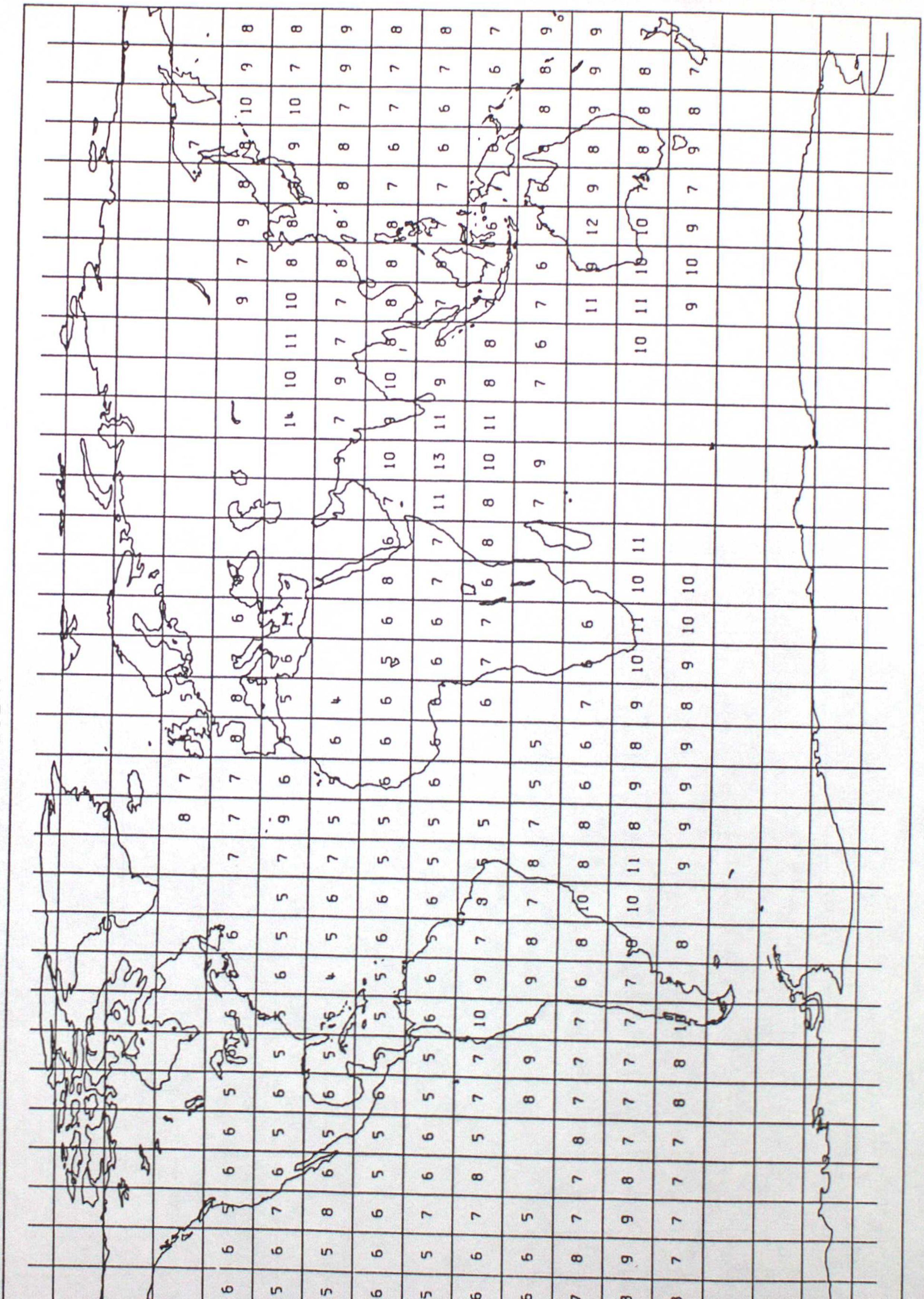
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
JUNE 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.5 0.0 -0.3 -0.6 [illegible] -0.5
-2.3 -1.3 -0.9 -1.1 -1.4 -2.7 -2.6 -1.5 [illegible] -2.9 [illegible] -1.3 0.2 -0.9 -1.6 -0.4 -1.5 -1.2 -1.9 [illegible] 4.2 0.7 0.9 -2.0 -1.5 -1.6 -1.6 -0.3
1.7 -0.4 0.2 1.1 1.0 0.2 -0.3 -0.9 -1.1 -1.5 -1.4 -1.0 -1.0 -0.6 -1.3 1.2 0.7 -0.3 -0.4 1.0 -1.6 -1.7 -2.8 -3.0 -0.8 -0.5 0.4 2.1 1.8 -0.8 0.1 1.4
2.3 0.2 1.3 1.4 1.4 3.4 2.1 0.0 0.2 0.3 0.0 0.1 0.4 -0.6 0.8 -0.2 0.7 3.3 -1.1 3.5 1.7 3.5 1.3 1.7 2.0 2.3 2.4 2.7 2.1 2.1 2.2
2.2 0.0 1.2 2.0 0.7 0.8 1.5 -0.2 -0.3 1.1 1.6 1.6 1.9 1.2 1.9 1.6 0.9 2.1 1.1 0.3 -2.2 -3.8 -0.9 0.5 4.1 1.8 0.0 -0.8 0.4 2.3 1.4 2.0 3.0 1.6 1.1 0.0
1.2 0.3 0.9 1.2 0.6 2.1 1.4 0.5 0.0 0.4 0.0 0.8 -0.1 0.7 1.9 1.6 2.1 2.2 1.9 1.1 -0.6 -0.4 -1.4 1.8 3.9 3.0 1.7 1.8 -0.9 -1.8 -1.8 -0.5 -0.6 0.3 1.4 2.1
0.8 -0.4 0.7 1.2 1.0 2.6 1.3 -0.6 3.4 2.8 -0.2 -1.9 0.9 1.8 0.4 0.8 3.6 2.9 2.0 2.3 -2.5 1.1 4.3 6.0 1.0 1.6 1.1 -0.5 -0.3 -0.4 0.5 0.5 0.8 1.0
0.5 -0.6 0.0 -0.6 1.2 1.9 3.3 6.1 3.7 4.7 3.3 1.3 -2.3 1.6 1.1 2.3 0.7 4.0 3.9 0.6 0.5 1.4 1.0 3.0 3.4 1.0 0.2 -0.2
0.3 -0.5 -1.3 -0.4 -0.9 -1.7 1.2 -0.6 2.3 4.3 4.2 1.0 0.7 -1.3 -1.2 -0.4 1.1 1.4 1.6 -0.8 -1.6 -3.1 -0.5 -1.3 0.3 1.3 -1.6 -1.1 -1.0
-0.2 -1.5 -0.9 -0.5 -1.0 -1.4 -0.8 0.5 0.8 0.7 0.3 -2.7 -3.6 -1.9 -2.6 -0.4 -0.4 -0.7 -0.8 -1.5 -5.6 -4.5 -5.7 -5.8 -2.7 -3.8 -3.2 0.9 0.9 0.5 -1.2 -0.6
-0.8 -0.3 -0.2 -0.7 -0.8 -1.2 -2.0 -1.0 -1.8 -3.2 -3.4 -1.5 -1.8 -1.5 -1.3 -2.0 -2.5 -1.5 -1.8 -1.7 -3.0 -3.7 -1.8 -1.9 -2.6 -2.4 -2.2

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
JUNE 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

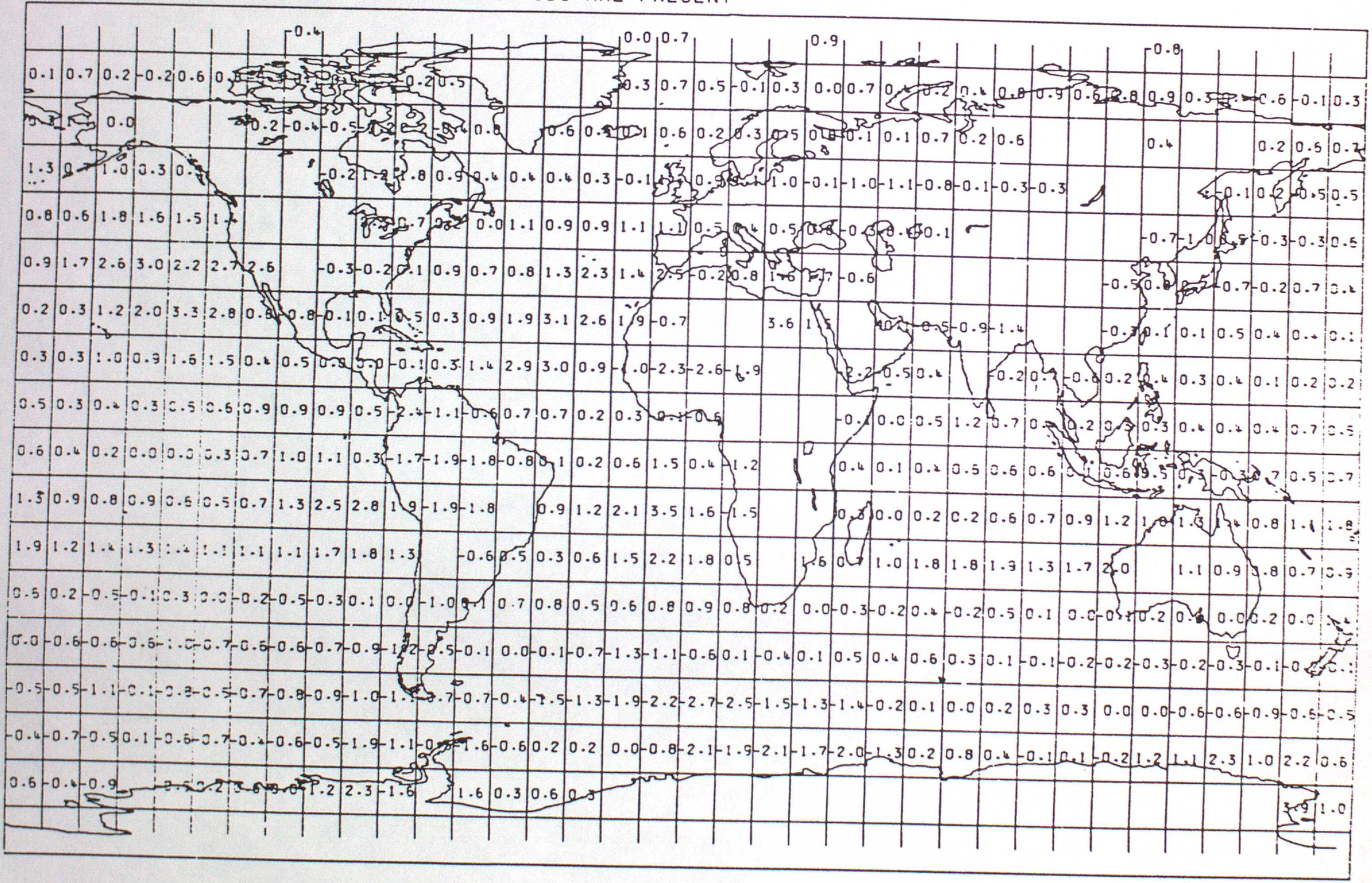
MONTH:June, 94

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from NOAA-11, NOAA-12 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer:850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa
	:Mean observation minus background temperature differences

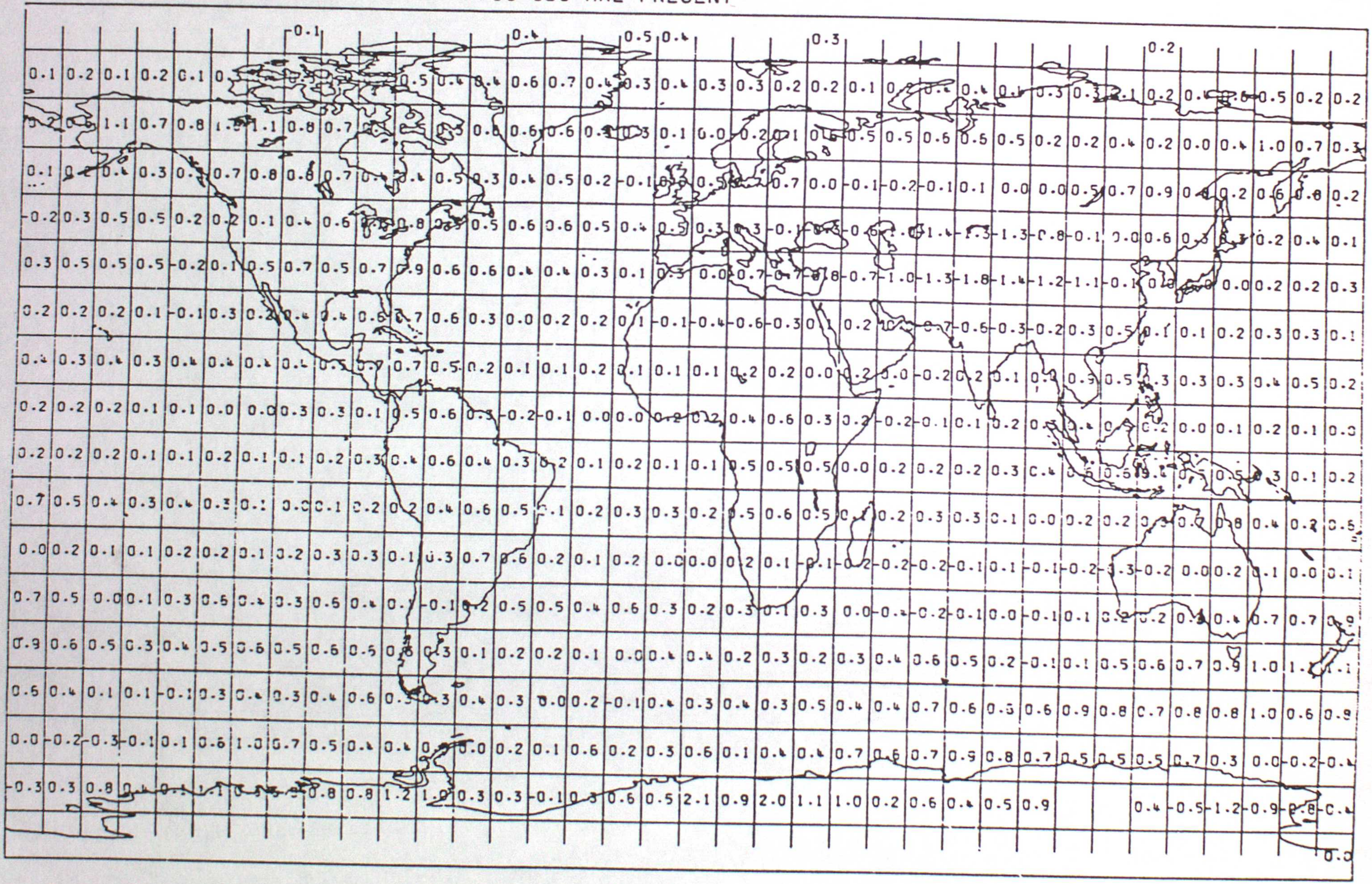
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JUNE 1994
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25



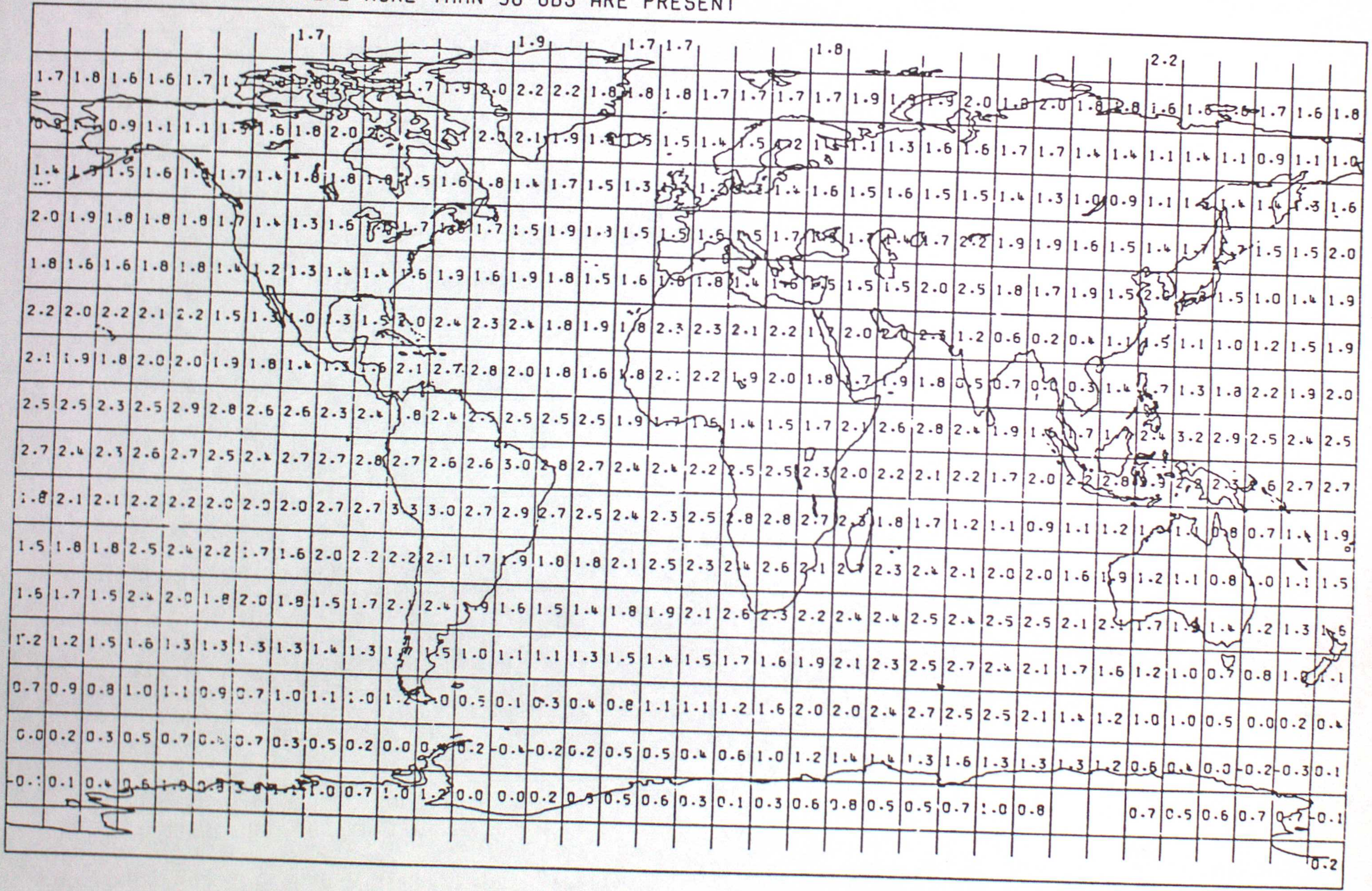
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JUNE 1994
NOAA-11. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 26



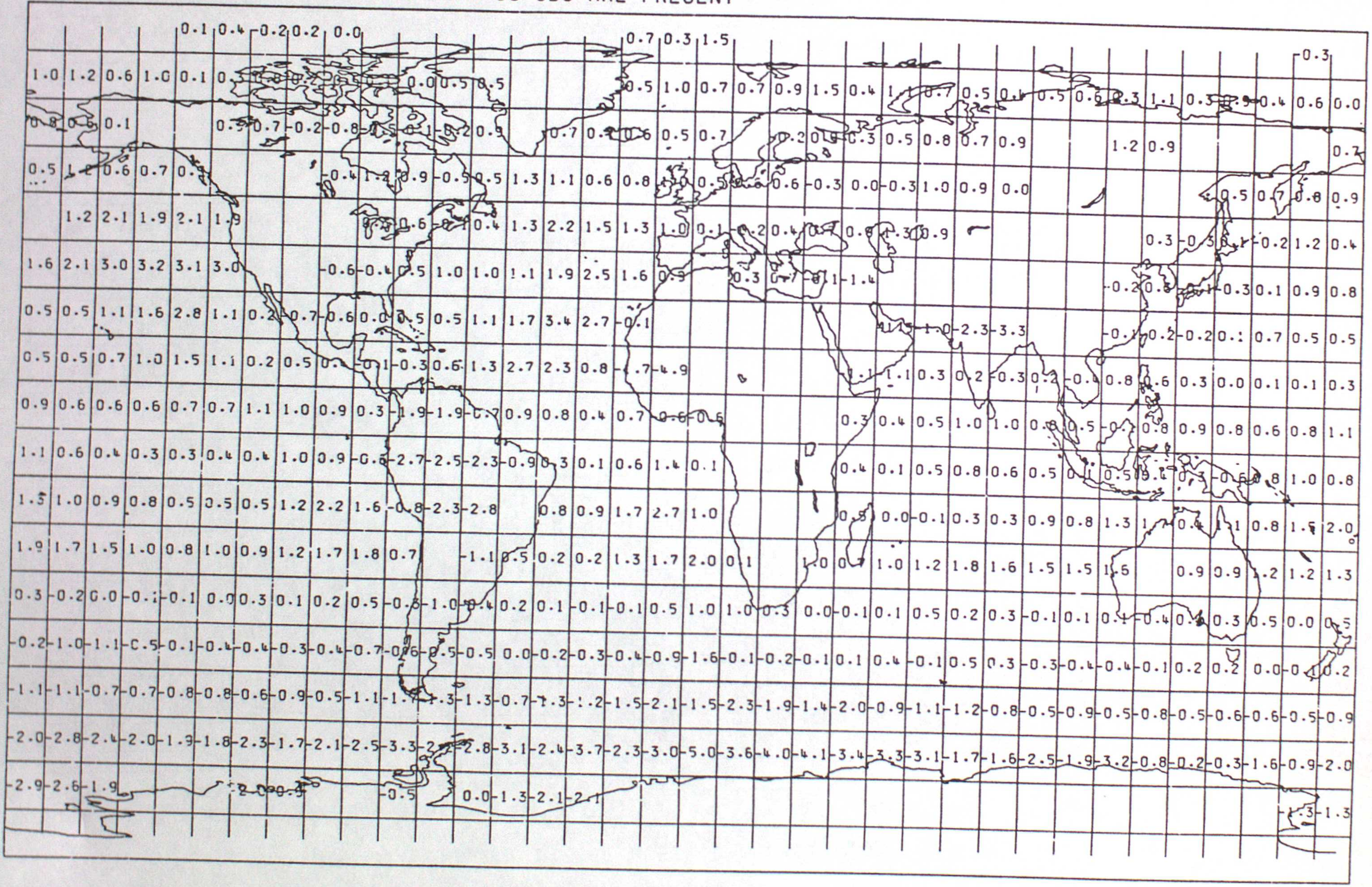
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JUNE 1994
NOAA-11. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 27



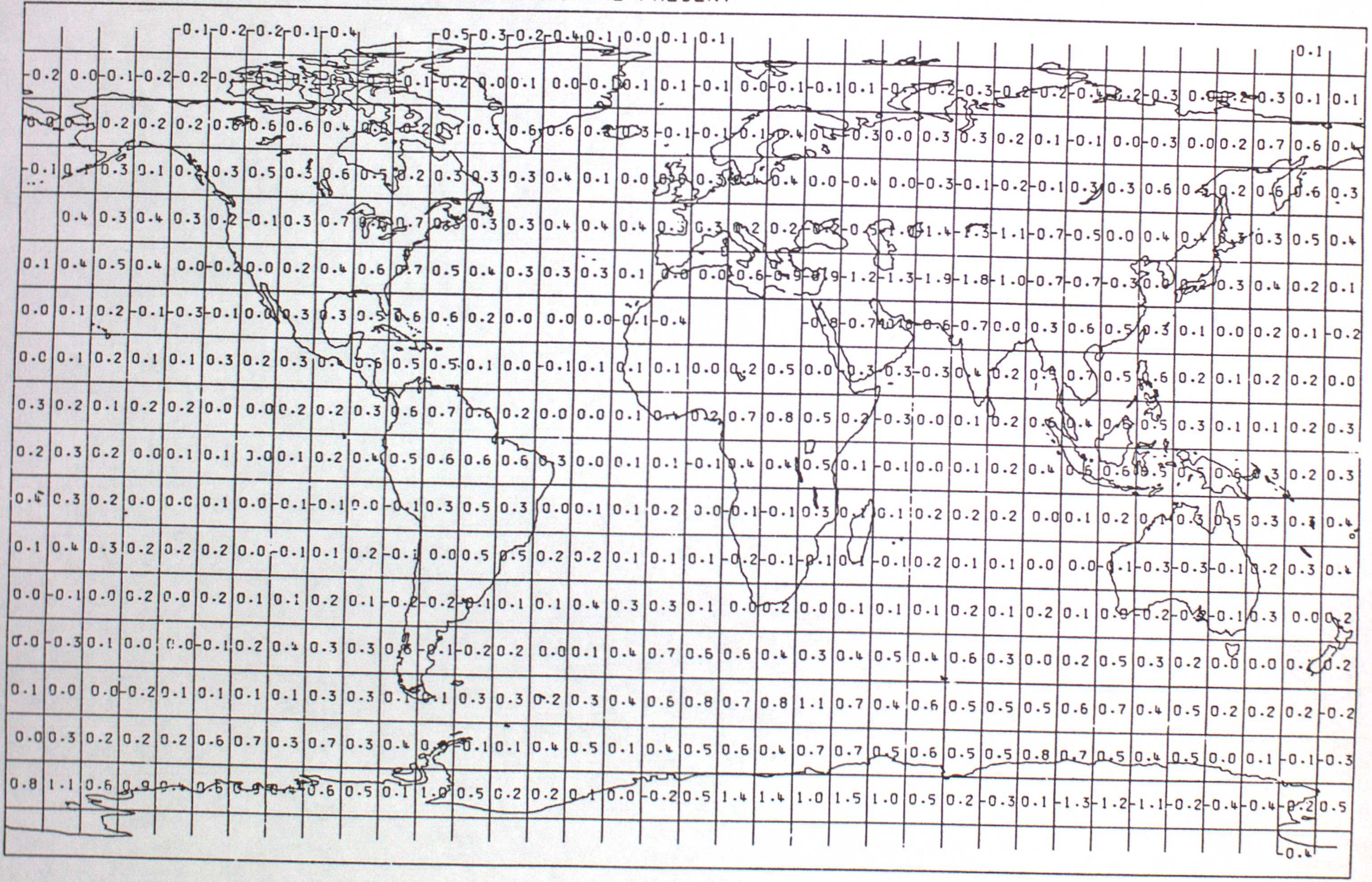
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JUNE 1994
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28


0.1 0.4 -0.2 0.2 0.0 0.7 0.3 1.5 -0.3
1.0 1.2 0.6 1.0 0.1 0.0 0.5 0.5 0.5 1.0 0.7 0.7 0.9 1.5 0.4 1.1 0.7 0.5 0.4 0.5 0.6 2.3 1.1 0.3 -0.4 0.6 0.0
0.8 0.5 0.1 0.5 0.7 -0.2 -0.8 0.9 0.7 0.6 0.5 0.7 0.2 0.9 0.3 0.5 0.8 0.7 0.9 1.2 0.9 0.7
0.5 1.2 0.6 0.7 -0.4 1.2 0.9 -0.5 0.5 1.3 1.1 0.6 0.8 0.5 0.6 -0.3 0.0 -0.3 1.0 0.9 0.0 0.5 0.7 0.8 0.9
1.2 2.1 1.9 2.1 1.9 0.6 0.4 1.3 2.2 1.5 1.3 1.0 0.1 -0.2 0.4 0.7 0.8 -1.3 0.9 0.3 -0.3 -0.2 1.2 0.4
1.6 2.1 3.0 3.2 3.1 3.0 -0.6 -0.4 0.5 1.0 1.0 1.1 1.9 2.5 1.6 0.9 0.3 0.7 -0.1 -1.4 -0.2 0.3 -0.3 0.1 0.9 0.8
0.5 0.5 1.1 1.6 2.8 1.1 0.2 -0.7 -0.6 0.0 0.5 0.5 1.1 1.7 3.4 2.7 -0.1 -1.0 -2.3 -3.3 -0.1 0.2 -0.2 0.1 0.7 0.5 0.5
0.5 0.5 0.7 1.0 1.5 1.1 0.2 0.5 -0.1 -0.3 0.6 1.3 2.7 2.3 0.8 -1.7 -4.9 1.1 1.1 0.3 0.2 -0.3 0.2 -0.4 0.8 0.6 0.3 0.0 0.1 0.1 0.3
0.9 0.6 0.6 0.6 0.7 0.7 1.1 1.0 0.9 0.3 -1.9 -1.9 -0.7 0.9 0.8 0.4 0.7 -0.6 -0.6 0.3 0.4 0.5 1.0 1.0 0.8 0.5 -0.3 0.8 0.9 0.8 0.6 0.8 1.1
1.1 0.6 0.4 0.3 0.3 0.4 0.4 1.0 0.9 -0.6 -2.7 -2.5 -2.3 -0.9 0.3 0.1 0.6 1.4 0.1 0.4 0.1 0.5 0.8 0.6 0.5 0.1 0.5 -0.3 -0.6 0.8 1.0 0.8
1.5 1.0 0.9 0.8 0.5 0.5 0.5 1.2 2.2 1.6 -0.8 -2.3 -2.8 0.8 0.9 1.7 2.7 1.0 0.5 0.0 -0.1 0.3 0.3 0.9 0.8 1.3 1.4 0.4 1.1 0.8 1.5 2.0
1.9 1.7 1.5 1.0 0.8 1.0 0.9 1.2 1.7 1.8 0.7 -1.1 0.5 0.2 0.2 1.3 1.7 2.0 0.1 1.0 0.7 1.0 1.2 1.8 1.6 1.5 1.5 1.5 0.9 0.9 1.2 1.2 1.3
0.3 -0.2 0.0 -0.1 -0.1 0.0 0.3 0.1 0.2 0.5 -0.6 -1.0 0.4 0.2 0.1 -0.1 -0.1 0.5 1.0 1.0 0.3 0.0 -0.1 0.1 0.5 0.2 0.3 -0.1 0.1 0.1 -0.4 0.4 0.3 0.5 0.0 0.5
-0.2 -1.0 -1.1 -0.5 -0.1 -0.4 -0.4 -0.3 -0.4 -0.7 -0.6 -0.5 -0.5 0.0 -0.2 -0.3 -0.4 -0.9 -1.6 -0.1 -0.2 -0.1 0.1 0.4 -0.1 0.5 0.3 -0.3 -0.4 -0.4 -0.1 0.2 0.2 0.0 -0.1 0.2
-1.1 -1.1 -0.7 -0.7 -0.8 -0.8 -0.6 -0.9 -0.5 -1.1 -1.7 -1.3 -1.3 -0.7 -1.3 -1.2 -1.5 -2.1 -1.5 -2.3 -1.9 -1.4 -2.0 -0.9 -1.1 -1.2 -0.8 -0.5 -0.9 -0.5 -0.8 -0.5 -0.6 -0.6 -0.5 -0.9
-2.0 -2.8 -2.4 -2.0 -1.9 -1.8 -2.3 -1.7 -2.1 -2.5 -3.3 -2.7 -2.8 -3.1 -2.4 -3.7 -2.3 -3.0 -5.0 -3.6 -4.0 -4.1 -3.4 -3.3 -3.1 -1.7 -1.6 -2.5 -1.9 -3.2 -0.8 -0.2 -0.3 -1.6 -0.9 -2.0
-2.9 -2.6 -1.9 -2.0 0.5 -0.5 0.0 -1.3 -2.1 -2.1 -1.3 -1.3

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JUNE 1994
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JUNE 1994
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

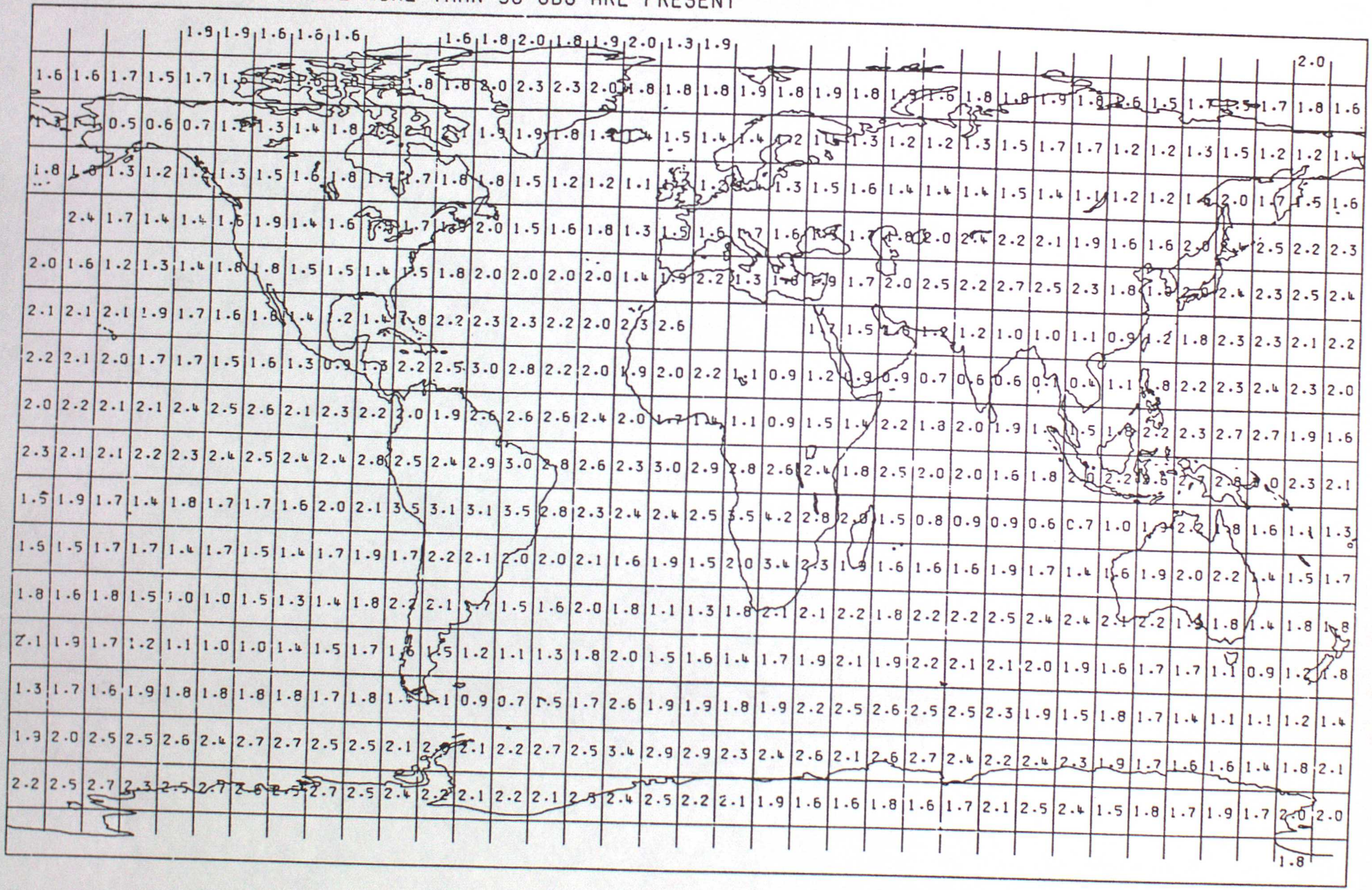


TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored
:Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS
:15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the wind speed > 3 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA-LEVEL PRESSURE											
13556	23.7	-46.6	ALL	MSLP	SUR	157	0	0	1.3	0.6	1.4
13561	28.3	-28.1	ALL	MSLP	SUR	143	0	0	1.0	0.5	1.1
25556	77.9	-9.8	ALL	MSLP	SUR	25	0	0	1.0	-0.1	1.0
40503	23.6	-68.2	ALL	MSLP	SUR	3	0	0	1.0	-1.7	1.9
40603	17.2	-47.1	ALL	MSLP	SUR	2	0	0	1.0	-1.2	1.6
40604	22.2	-46.9	ALL	MSLP	SUR	2	0	0	0.4	-0.5	0.6
40702	29.6	-63.2	ALL	MSLP	SUR	1	0	0	0.0	11.2	11.2
41522	28.3	-72.5	ALL	MSLP	SUR	266	0	0	1.0	0.7	1.2
41525	36.9	-76.3	ALL	MSLP	SUR	17	3	18	0.8	-0.2	0.8
44724	52.6	-41.0	ALL	MSLP	SUR	2	0	0	0.0	1.2	1.2
44743	31.6	-36.7	ALL	MSLP	SUR	383	1	0	0.9	-0.1	0.9
44761	59.6	-21.7	ALL	MSLP	SUR	1252	0	0	1.2	0.4	1.3
44766	58.7	-44.5	ALL	MSLP	SUR	288	5	2	1.2	-0.6	1.3
44767	56.9	-35.4	ALL	MSLP	SUR	1307	2	0	1.3	0.2	1.3
44768	52.9	-31.7	ALL	MSLP	SUR	1064	1	0	1.7	0.2	1.7
44769	54.5	-30.5	ALL	MSLP	SUR	1280	2	0	1.5	0.1	1.5
44770	59.3	-35.7	ALL	MSLP	SUR	947	3	0	1.3	-0.2	1.3
44771	55.7	-19.8	ALL	MSLP	SUR	1191	2	0	1.4	0.2	1.4
44774	52.2	-41.2	ALL	MSLP	SUR	893	5	1	1.6	0.1	1.6
44778	62.0	-19.0	ALL	MSLP	SUR	1322	6	0	3.0	-0.8	3.1
44781	56.1	-16.5	ALL	MSLP	SUR	1	0	0	0.0	-1.5	1.5
62501	47.1	-12.6	ALL	MSLP	SUR	146	0	0	1.1	-0.3	1.2
62502	45.8	-4.3	ALL	MSLP	SUR	147	0	0	1.4	0.1	1.4
62503	47.6	-9.6	ALL	MSLP	SUR	302	0	0	1.1	0.7	1.3
62504	48.6	-11.6	ALL	MSLP	SUR	334	0	0	1.4	0.6	1.5
62505	48.5	-10.2	ALL	MSLP	SUR	467	0	0	1.1	0.7	1.3
62506	46.8	-5.2	ALL	MSLP	SUR	490	0	0	1.3	-0.4	1.3
62507	47.4	-13.4	ALL	MSLP	SUR	145	0	0	1.1	0.4	1.2
62514	40.7	-27.4	ALL	MSLP	SUR	222	0	0	1.4	0.0	1.4
62517	48.9	-28.2	ALL	MSLP	SUR	15	0	0	2.0	-5.3	5.7
62524	32.1	-18.4	ALL	MSLP	SUR	824	2	0	1.3	0.3	1.4
62695	31.9	-22.0	ALL	MSLP	SUR	546	0	0	1.1	0.3	1.2
62696	61.1	-15.6	ALL	MSLP	SUR	1308	0	0	1.1	0.3	1.2
63662	75.4	-9.5	ALL	MSLP	SUR	502	0	0	0.8	0.1	0.8
64528	61.3	-25.6	ALL	MSLP	SUR	1130	0	0	1.2	0.2	1.2
65592	63.7	-32.9	ALL	MSLP	SUR	1231	22	2	1.3	-0.2	1.3
WIND SPEED											
13556	23.7	-46.6	ALL	SPEED	SUR	464	0	0	1.0	-1.1	1.5
13561	28.3	-28.1	ALL	SPEED	SUR	426	0	0	1.4	-0.4	1.4
40503	23.6	-68.2	ALL	SPEED	SUR	3	0	0	1.1	1.8	2.2
40603	17.2	-47.1	ALL	SPEED	SUR	2	0	0	0.2	-0.1	0.2
40604	22.2	-46.9	ALL	SPEED	SUR	2	0	0	0.5	-0.1	0.5
40702	29.6	-63.2	ALL	SPEED	SUR	1	0	0	0.0	0.2	0.2
40807	11.5	-64.9	ALL	SPEED	SUR	1	0	0	0.0	0.0	0.0
62502	45.8	-4.3	ALL	SPEED	SUR	423	0	0	1.9	0.9	2.1
62505	48.5	-10.2	ALL	SPEED	SUR	459	0	0	1.5	0.0	1.5
62506	46.8	-5.2	ALL	SPEED	SUR	445	0	0	1.6	0.2	1.6
62517	48.9	-28.2	ALL	SPEED	SUR	1	0	0	0.0	6.5	6.5
WIND DIRECTION											
13556	23.7	-46.6	ALL	DIRN.	SUR	171	0	0	13.5	5.4	14.5
13561	28.3	-28.1	ALL	DIRN.	SUR	226	0	0	22.7	3.9	23.1
40503	23.6	-68.2	ALL	DIRN.	SUR	1	0	0	0.0	-20.7	20.7
40603	17.2	-47.1	ALL	DIRN.	SUR	1	0	0	0.0	-21.9	21.9
40604	22.2	-46.9	ALL	DIRN.	SUR	2	0	0	3.3	-25.0	25.2
40807	11.5	-64.9	ALL	DIRN.	SUR	1	0	0	0.0	-5.9	5.9
62502	45.8	-4.3	ALL	DIRN.	SUR	307	0	0	23.3	-3.0	23.4
62505	48.5	-10.2	ALL	DIRN.	SUR	311	0	0	17.8	2.4	18.0

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
62506	46.8	-5.2	ALL	DIRN.	SUR	316	0	0	16.3	-4.4	16.8
62517	48.9	-28.2	ALL	DIRN.	SUR	1	0	0	0.0	-30.3	30.3

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures:
Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in $m\ s^{-1}$

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 $m\ s^{-1}$ Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	2148	1	2	1.8	-0.2	2172	0	2	0	7.5	1.5
AAN	51	0	0	1.5	-0.7	50	0	8	2	9.5	-0.1
ACA	627	0	2	2.0	-0.3	652	0	2	1	7.0	1.0
AEA	122	2	2	1.6	-0.1	121	0	6	0	9.3	0.4
AEL	170	1	7	1.8	0.0	174	1	6	1	7.4	1.1
AFL	81	5	100	3.8	2.3	89	1	100	1	15.1	1.4
AFR	689	0	7	2.0	-0.1	701	0	7	0	8.0	1.5
AIC	35	0	3	2.0	-0.8	36	0	6	0	10.5	1.9
AMM	35	3	3	1.9	0.1	35	0	3	0	8.5	1.5
AMT	49	0	2	2.0	0.9	60	0	2	0	9.6	2.8
AMX	173	1	2	1.7	0.1	174	0	1	0	7.5	0.7
ANZ	190	1	6	2.0	-1.0	191	0	9	3	7.9	1.4
AOM	178	0	1	1.4	0.5	181	0	2	0	8.7	1.5
ATN	178	0	2	2.5	-1.7	178	0	7	0	12.4	3.4
AUA	100	0	2	1.8	-0.6	104	0	3	0	8.1	1.5
AVA	121	0	2	2.0	-0.4	125	0	3	0	8.7	1.1
AZA	491	1	3	2.0	0.3	494	0	4	0	7.8	1.5
BAL	202	3	19	1.9	-0.2	209	0	18	0	9.6	1.7
BAW	1189	0	3	2.0	-0.1	1212	0	4	1	8.5	1.6
BBB	67	0	21	1.3	-0.8	67	0	22	0	5.3	1.4
BWA	103	1	3	1.6	0.8	106	0	5	0	9.3	1.6
CDN	582	0	3	2.2	0.6	583	0	3	1	7.3	1.5
CFC	44	0	9	2.4	-0.4	44	0	7	0	8.1	1.5
CFG	393	1	100	2.1	-1.1	400	0	3	0	7.7	1.4
CKT	34	0	9	1.7	0.6	36	0	11	3	7.0	-0.1
CLI	107	0	5	2.6	-0.5	110	0	3	1	7.1	2.0
CLX	42	0	2	2.3	-0.9	42	0	0	0	7.0	2.1
CMM	173	1	5	1.7	0.2	174	0	6	0	7.9	0.8
COA	362	2	6	2.2	0.8	372	0	5	1	8.6	1.9
CRL	55	0	7	2.6	0.6	55	2	4	2	7.0	1.4
CSA	20	0	0	1.8	-0.3	20	0	0	0	7.1	1.2
CTM	51	0	100	2.9	-1.5	56	0	20	0	8.1	2.5
CUB	32	0	0	2.5	0.9	33	0	0	0	7.4	-1.1
DAE	32	6	13	3.3	2.1	31	0	0	0	6.8	1.5
DAL	2522	0	2	2.0	0.1	2525	0	3	0	8.3	1.3
DHL	173	2	12	3.5	-1.2	179	1	100	0	9.1	0.1
DLH	1907	0	6	1.9	-0.2	1900	0	11	4	7.1	1.2
DOA	107	0	23	1.3	-0.1	109	1	23	1	7.1	1.3
EIA	47	0	13	1.9	-0.3	48	0	13	0	9.7	2.4
EIN	47	0	9	2.7	1.0	48	0	6	0	7.7	1.5
ELY	122	0	7	2.0	-0.1	124	0	5	0	7.9	2.0
FDX	348	1	4	2.4	0.8	355	0	3	0	7.9	1.7
FIN	486	0	2	2.1	0.6	488	0	3	1	8.1	1.6
GAF	86	0	1	2.2	-0.4	85	0	1	0	8.1	1.0
HLF	70	1	100	1.6	-0.8	71	0	0	0	6.8	1.6
IBE	838	1	18	2.0	-0.2	835	0	19	0	8.4	1.4
ICE	413	0	2	1.8	-0.1	412	0	1	0	6.9	1.4
KLM	1413	0	2	2.0	0.1	1434	0	2	0	7.5	1.3
LDA	182	1	100	2.1	-1.5	184	0	7	0	6.3	1.0
LDI	64	0	100	2.5	-2.0	64	0	5	0	9.6	2.2
LIB	36	0	3	1.2	-0.6	38	0	3	0	4.8	0.1
LOT	850	0	2	2.1	0.0	846	0	2	0	7.8	1.0
LTU	435	0	3	1.7	0.2	432	0	4	0	7.5	1.6
LWD	56	0	29	2.6	1.5	56	0	32	0	9.9	3.4
MAH	27	0	4	2.1	-1.7	27	4	11	0	10.8	2.4
MPH	442	1	1	1.8	-0.2	443	0	2	0	8.0	1.6
NAT	22	9	5	1.9	0.9	22	0	0	0	5.9	0.9
NWA	2476	0	2	2.1	0.7	2520	0	2	1	8.4	1.4
OAL	27	0	11	2.3	1.2	30	0	3	0	5.8	-0.1

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
PIA	20	5	10	2.6	0.3	21	5	5	0	6.2	1.6
RAF	21	0	0	1.0	-0.1	21	0	0	0	7.6	-0.2
RJA	28	0	4	2.1	0.7	29	0	3	0	7.0	1.8
ROT	26	0	8	2.2	-1.0	31	0	10	0	7.6	2.2
ROY	42	0	0	2.9	1.0	43	0	0	0	8.0	2.6
RRR	207	1	21	2.6	-0.2	208	0	20	1	10.8	2.8
SAB	59	5	3	1.9	0.2	62	0	2	0	8.2	3.0
SAS	1813	0	1	2.0	-0.3	1811	0	2	1	7.1	0.9
SIA	42	0	2	2.0	-0.6	43	0	5	0	7.8	1.1
SPP	62	0	5	2.1	0.2	62	0	3	0	9.0	1.3
SVA	58	2	2	1.6	0.0	66	0	5	0	8.8	1.4
SWR	130	0	2	1.9	0.5	133	0	3	0	7.1	1.3
TAP	421	0	1	1.8	-0.4	415	0	2	0	8.1	1.7
TIH	179	0	1	1.9	0.1	181	0	2	1	6.0	1.0
TOW	69	0	6	2.0	0.4	73	0	7	0	8.4	1.2
TRA	34	0	3	2.2	0.8	34	0	3	0	5.0	0.7
TSC	165	0	3	2.4	-0.3	168	0	2	0	7.8	2.4
TWA	1252	1	2	1.9	0.1	1251	0	3	0	8.1	1.7
UAL	2176	1	4	2.5	-0.5	2232	0	4	3	9.8	0.8
ULE	133	0	0	1.9	0.4	131	0	1	0	7.4	1.5
UPS	293	0	13	1.5	-0.1	302	0	16	0	9.4	1.4
USA	160	0	2	1.9	-0.3	165	0	2	0	7.7	2.4
VIA	67	0	3	1.3	0.2	67	0	4	1	8.8	1.8
VIR	153	2	3	2.0	-0.6	156	0	3	1	7.8	2.4
BA	8755	0	9	1.8	0.6	8742	0	9	0	7.7	1.3
KL	1828	0	100	2.5	1.9	1828	0	11	0	7.3	1.6
LH	147	0	1	2.1	-0.4	146	0	1	0	10.5	3.6
NW	53	0	4	1.2	0.5	53	0	4	0	5.5	-0.1
M	127	4	4	3.4	1.4	133	0	4	1	10.8	3.4
N	254	1	3	2.6	0.6	262	0	1	0	8.9	0.4

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

```
 WMO   OBS                       NUM     NUM
IDENT  TIME  ELM   LEV           OBS    GROSS      SD     RMS     BIAS

DBBH    00    Z    100             1       0       0.0    21.0    -21.0
DBLK    00    Z    100             1       0       0.0    22.0     22.0
DBLK    12    Z    100             8       0      19.1    28.5     21.1
DB3     00    Z    100             1       0       0.0     6.0      6.0
EHOA    12    Z    100             4       0      14.2    28.1    -24.3

FNOR    00    Z    100            12       0      18.2    29.7     23.4
FNOR    12    Z    100            12       0      11.9    20.7     16.9
FNOU    00    Z    100            11       0      19.9    28.6     20.6
FNOU    12    Z    100            10       0      16.4    19.3     10.2
FNPH    00    Z    100            12       0      17.1    21.7     13.3

FNPH    12    Z    100            14       0      19.7    19.8      1.8
FNRS    00    Z    100            13       0      15.2    28.9     24.5
FNRS    12    Z    100            13       0      11.1    11.3      2.1
GACA    00    Z    100            26       0      16.0    19.7     11.5
GACA    12    Z    100            26       0      16.1    16.2     -1.3

JBOA    00    Z    100             1       0       0.0     8.0     -8.0
JCCX    00    Z    100             1       0       0.0    28.0     28.0
JDWX    00    Z    100             1       0       0.0    30.0     30.0
LDWR    00    Z    100            29       0      13.2    19.7     14.6
LDWR    12    Z    100            29       0      13.2    14.3      5.5

OXYL    00    Z    100            19       0      17.8    28.7     22.5
OXYL    12    Z    100            20       0      14.8    32.3     28.6
OZJP    00    Z    100            19       0      16.9    21.6     13.4
OZJP    12    Z    100            21       0      30.8    35.6     17.8
P3OO4   00    Z    100            21       0      14.4    15.6      6.1

P3OO4   12    Z    100            18       0      17.8    22.6     13.9
SHIPAA  00    Z    100            16       0      17.5    39.3     35.1
SHIPAA  12    Z    100            14       0      18.9    31.6     25.4
UUPB    00    Z    100             1       0       0.0    39.0     39.0
V2LV    00    Z    100            16       0      31.3    32.4      8.4

V2LV    12    Z    100            21       0      23.4    24.1      5.7
V2LX    00    Z    100            25       0      13.8    14.8      5.2
V2LX    12    Z    100            26       0      19.3    23.8     14.0
03953   00    Z    100            29       0      13.5    27.0     23.3
03953   12    Z    100            29       0      16.5    23.2     16.4

04018   00    Z    100            27       0      12.2    23.0     19.5
04018   12    Z    100            28       0      13.0    23.6     19.6
04220   00    Z    100            30       0      14.2    35.6     32.6
04220   12    Z    100            30       0      16.0    39.5     36.1
04270   00    Z    100            28       0      15.5    28.2     23.6

04270   12    Z    100            30       0      14.1    33.3     30.2
04339   00    Z    100            30       0      13.3    27.9     24.6
04339   12    Z    100            30       0      15.2    31.1     27.1
04360   00    Z    100            30       0      12.1    24.9     21.7
04360   12    Z    100            30       0      13.8    24.8     20.6

08001   00    Z    100            27       0      25.1    40.2     31.4
08001   12    Z    100            29       0      27.0    34.5     21.4
08508   00    Z    100            30       0      18.2    29.0     22.6
08508   12    Z    100            29       0      19.2    23.0     12.5
08594   00    Z    100             1       0       0.0     5.0     -5.0

08594   12    Z    100            16       0      21.1    22.4      7.5
60020   00    Z    100            27       0      18.5    26.0     18.3
60020   12    Z    100            30       0      46.5    48.0     11.9
71600   00    Z    100            26       0      16.8    17.7      5.4
71600   12    Z    100            27       0      23.4    47.4     41.3

72201   00    Z    100            28       0      21.4    41.7     35.8
72201   12    Z    100            28       0      28.2    42.4     31.6
72304   00    Z    100            29       0      30.2    49.0     38.6
72304   12    Z    100            27       0      18.0    54.8     51.7
72402   00    Z    100            26       0      26.4    56.6     50.0
```

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	12	Z	100	27	0	18.6	58.8	55.8
72606	00	Z	100	28	0	17.6	23.2	15.1
72606	12	Z	100	28	0	21.5	33.9	26.2
74494	00	Z	100	28	0	29.8	29.9	3.1
74494	12	Z	100	26	0	17.6	35.6	31.0
78016	00	Z	100	1	0	0.0	8.0	-8.0
78016	12	Z	100	7	0	29.5	35.7	20.0

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

```
  WMO   OBS                  NUM    NUM
 IDENT  TIME  ELM   LEV     OBS   GROSS      SD     RMS     BIAS

 DBBH    00    Z    500      1      0       0.0     9.0      9.0
 DBLK    00    Z    500      1      0       0.0    14.0     14.0
 DBLK    12    Z    500      8      0      18.7    18.8     -2.0
 DB3     00    Z    500      1      0       0.0    13.0    -13.0
 FNOR    00    Z    500     12      0      14.1    14.3      2.5

 FNOR    12    Z    500     13      0      11.0    11.2      2.2
 FNOU    00    Z    500     12      0       5.8    14.6     13.4
 FNOU    12    Z    500     11      0       4.0     7.2      6.0
 FNPH    00    Z    500     15      0       9.4    11.3      6.2
 FNPH    12    Z    500     14      0      10.6    10.6      0.2

 FNRS    00    Z    500     15      0       8.7    12.5      8.9
 FNRS    12    Z    500     13      0       7.6     8.1      3.0
 GACA    00    Z    500     27      0      10.3    12.0      6.2
 GACA    12    Z    500     26      0       9.3     9.5      1.6
 JBOA    00    Z    500      1      0       0.0     1.0     -1.0

 JCCX    00    Z    500      1      0       0.0     5.0     -5.0
 JDWX    00    Z    500      1      0       0.0     6.0      6.0
 LDWR    00    Z    500     29      0       9.2     9.6      2.6
 LDWR    12    Z    500     29      0      11.4    11.5      1.6
 OXYL    00    Z    500     20      0      16.4    17.0      4.3

 OXYL    12    Z    500     20      0      15.4    18.2      9.6
 OZJP    00    Z    500     19      0      11.2    12.7      5.9
 OZJP    12    Z    500     23      0      14.8    16.5      7.4
 P3004   00    Z    500     22      0      11.2    11.9      3.8
 P3004   12    Z    500     18      0      11.1    11.6      3.4

 SHIP    12    Z    500      1      0       0.0    12.0    -12.0
 SHIPAA  00    Z    500     17      0       8.1     8.5      2.5
 SHIPAA  12    Z    500     16      0       7.3     8.4     -4.2
 UUPB    00    Z    500      1      0       0.0     3.0     -3.0
 V2LV    00    Z    500     18      1      18.3    21.8     11.9

 V2LV    12    Z    500     24      0      12.5    14.8      7.8
 V2LX    00    Z    500     25      0       7.7     9.9      6.3
 V2LX    12    Z    500     25      0      11.3    12.9      6.2
 WTEA    00    Z    500      1      0       0.0    12.0     12.0
 03953   00    Z    500     30      0       9.0    11.5      7.3

 03953   12    Z    500     30      0       9.4     9.9      3.3
 04018   00    Z    500     30      0       9.5    15.0     11.6
 04018   12    Z    500     30      0      12.1    14.7      8.4
 04220   00    Z    500     30      0      11.5    16.9     12.4
 04220   12    Z    500     30      0      10.6    11.6      4.8

 04270   00    Z    500     29      0      13.3    15.5      8.0
 04270   12    Z    500     30      0      17.1    21.1     12.5
 04339   00    Z    500     30      0      10.0    12.7      7.9
 04339   12    Z    500     30      0      13.7    16.7      9.4
 04360   00    Z    500     30      0      10.8    11.3      3.4

 04360   12    Z    500     30      0      15.6    15.6     -0.4
 08001   00    Z    500     25      0      12.4    18.6     13.9
 08001   12    Z    500     29      0      15.8    16.3      3.8
 08508   00    Z    500     30      0      10.7    15.2     10.8
 08508   12    Z    500     30      0      10.3    11.7      5.5

 08594   00    Z    500      1      0       0.0     9.0      9.0
 08594   12    Z    500     16      0       9.4    12.5      8.2
 60020   00    Z    500     28      0      15.8    26.7     21.5
 60020   12    Z    500     30      0      18.6    23.5     14.4
 71600   00    Z    500     29      0       8.7     8.7      0.6

 71600   12    Z    500     28      0      13.6    18.9     13.1
 72201   00    Z    500     28      0       8.6    14.8     12.0
 72201   12    Z    500     28      0       9.5    18.3     15.6
 72304   00    Z    500     29      0       9.8    10.7      4.3
 72304   12    Z    500     30      0      11.5    16.2     11.4
```

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	00	Z	500	29	0	9.9	13.9	9.8
72402	12	Z	500	30	0	9.8	19.1	16.5
72606	00	Z	500	27	0	11.0	11.0	0.4
72606	12	Z	500	28	0	8.8	11.2	6.9
74494	00	Z	500	27	0	9.4	9.5	-1.4
74494	12	Z	500	27	0	8.0	10.2	6.3
78016	00	Z	500	8	0	27.2	42.6	32.8
78016	12	Z	500	11	0	9.8	23.9	21.8

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	1	0	0	3.3	1.1	-1.5
DBLK	00	V	100	1	0	0	4.5	-4.0	4.4
DBLK	12	V	100	7	0	0	4.5	-1.2	0.4
DB3	00	V	100	1	0	0	4.5	3.4	5.0
EHOA	12	V	100	7	0	0	4.5	-3.6	-1.8
FNOR	00	V	100	12	0	0	4.5	-0.2	2.2
FNOR	12	V	100	12	0	0	3.8	-1.1	0.7
FNOU	00	V	100	11	0	0	2.2	-0.7	1.3
FNOU	12	V	100	10	0	0	3.8	0.5	-0.4
FNPH	00	V	100	12	0	0	4.2	0.6	0.4
FNPH	12	V	100	14	0	0	2.4	0.0	1.0
FNRS	00	V	100	13	0	0	2.8	1.0	1.6
FNRS	12	V	100	13	0	0	4.3	-0.2	-0.8
GACA	00	V	100	25	1	3	2.0	6.6	1.3
GACA	12	V	100	26	0	0	1.8	-1.4	-1.3
JBOA	00	V	100	1	0	0	2.6	-0.8	-2.3
JCCX	00	V	100	1	0	0	2.6	-0.5	-1.2
JDWX	00	V	100	1	0	0	3.4	0.6	-0.7
LDWR	00	V	100	29	0	0	3.4	-0.7	-0.3
LDWR	12	V	100	29	0	0	1.6	-0.1	0.4
OXYL	00	V	100	19	0	0	1.4	0.2	1.0
OXYL	12	V	100	20	0	0	2.2	0.0	-0.3
OZJP	00	V	100	19	0	0	2.8	-0.2	-0.7
OZJP	12	V	100	21	0	0	2.9	-0.1	0.1
P3OO4	00	V	100	21	0	0	4.8	2.0	1.4
P3OO4	12	V	100	18	0	0	4.1	1.2	1.0
SHIPAA	00	V	100	15	0	13	3.6	-0.2	0.5
SHIPAA	12	V	100	12	0	0	4.9	0.1	0.4
V2LV	00	V	100	16	0	0	3.4	1.5	0.4
V2LV	12	V	100	21	0	0	3.9	1.1	0.2
V2LX	00	V	100	24	0	0	3.3	-0.1	0.0
V2LX	12	V	100	26	0	0	4.5	0.3	-0.3
03953	00	V	100	29	0	0	2.2	0.0	0.7
03953	12	V	100	28	0	0	2.4	-0.8	0.2
04018	00	V	100	26	0	0	2.4	-0.3	0.2
04018	12	V	100	27	0	0	2.2	0.4	-0.6
04220	00	V	100	30	0	0	1.4	-0.3	0.7
04220	12	V	100	30	0	0	1.6	0.3	-0.1
04270	00	V	100	28	0	0	1.9	0.3	1.3
04270	12	V	100	30	0	0	2.0	0.2	0.3
04339	00	V	100	30	0	0	1.6	1.0	-0.2
04339	12	V	100	30	0	0	2.2	0.5	-1.0
04360	00	V	100	29	0	0	1.6	0.0	0.7
04360	12	V	100	30	0	0	1.9	0.1	-0.8
08001	00	V	100	27	0	0	2.9	1.4	0.5
08001	12	V	100	29	0	0	2.6	0.7	0.3
08508	00	V	100	30	0	0	4.3	1.3	2.2
08508	12	V	100	29	0	0	3.6	1.2	1.7
08594	00	V	100	1	0	0	3.1	2.4	11.7
08594	12	V	100	16	0	0	3.1	0.8	1.2
60020	00	V	100	27	0	0	4.2	-0.6	0.9
60020	12	V	100	30	0	0	2.9	-1.0	0.1
71600	00	V	100	25	0	0	3.4	-0.8	-0.7
71600	12	V	100	24	0	0	3.2	0.1	-1.3
72201	00	V	100	27	0	0	2.5	1.0	1.1
72201	12	V	100	26	0	0	3.0	-1.5	-1.3
72304	00	V	100	29	0	0	3.5	-0.9	0.1
72304	12	V	100	27	0	0	3.5	-0.8	-0.6
72402	00	V	100	26	0	0	2.6	-0.2	-0.5
72402	12	V	100	25	0	0	3.7	-1.7	-2.4

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72606	00	V	100	26	0	0	2.8	1.4	-0.3
72606	12	V	100	26	0	0	3.3	0.0	-1.1
74494	00	V	100	23	0	0	3.4	0.0	0.2
74494	12	V	100	23	0	0	2.5	-1.5	-1.3
78016	00	V	100	1	0	0	3.5	-2.8	-0.4
78016	12	V	100	7	0	0	3.5	-0.7	-2.2

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	00	V	500	1	0	0	5.9	7.4	0.9
DBLK	12	V	500	6	0	0	5.9	-1.7	-3.0
DB3	00	V	500	1	0	0	5.9	6.6	-7.0
FNOR	00	V	500	12	0	0	5.9	0.8	0.0
FNOR	12	V	500	13	0	0	3.2	0.9	0.2
FNOU	00	V	500	12	0	0	2.8	1.7	0.8
FNOU	12	V	500	11	0	0	2.6	1.3	0.5
FNPH	00	V	500	14	0	0	2.8	-0.1	-0.2
FNPH	12	V	500	13	0	0	2.7	-0.6	-0.4
FNRS	00	V	500	15	0	0	2.1	0.3	-1.1
FNRS	12	V	500	13	0	0	3.6	0.5	0.2
GACA	00	V	500	27	0	0	3.2	0.1	1.1
GACA	12	V	500	26	0	0	4.3	1.4	-0.4
JBOA	00	V	500	1	0	0	4.4	1.1	0.6
JCCX	00	V	500	1	0	0	4.4	0.1	0.3
JDWX	00	V	500	1	0	0	2.0	-1.6	1.0
LDWR	00	V	500	29	0	0	2.0	-0.4	0.4
LDWR	12	V	500	29	0	0	2.2	-0.8	0.3
OXYL	00	V	500	20	0	0	2.7	0.1	0.3
OXYL	12	V	500	20	0	0	4.1	-0.9	-0.2
OZJP	00	V	500	19	0	0	2.6	0.5	0.8
OZJP	12	V	500	23	0	0	3.6	-1.0	-0.3
P3OO4	00	V	500	22	0	0	3.6	-0.2	-0.2
P3OO4	12	V	500	18	0	0	2.7	0.2	1.0
SHIP	12	V	500	1	0	0	3.5	-5.8	4.9
SHIPAA	00	V	500	17	0	5	3.5	0.3	0.6
SHIPAA	12	V	500	16	0	6	5.4	-1.4	2.3
V2LV	00	V	500	18	0	0	2.9	1.4	1.2
V2LV	12	V	500	24	0	0	3.6	0.3	0.0
V2LX	00	V	500	25	0	0	3.7	-0.6	-0.1
V2LX	12	V	500	25	0	0	4.1	-0.1	-0.9
WTEA	00	V	500	1	0	0	2.9	-2.3	-0.3
03953	00	V	500	30	0	0	2.4	0.3	0.1
03953	12	V	500	30	0	0	3.0	0.3	0.5
04018	00	V	500	30	0	0	3.8	-0.5	0.7
04018	12	V	500	30	0	0	3.7	-0.6	0.2
04220	00	V	500	30	0	0	2.9	0.2	-0.9
04220	12	V	500	30	0	0	3.5	-0.5	1.1
04270	00	V	500	29	0	0	3.4	-1.7	0.6
04270	12	V	500	30	0	0	4.1	-0.3	-0.5
04339	00	V	500	30	0	0	2.9	0.7	-0.7
04339	12	V	500	30	0	0	2.7	-0.6	-1.1
04360	00	V	500	30	0	0	2.8	0.8	0.2
04360	12	V	500	30	0	0	3.9	-0.3	-0.2
08001	00	V	500	25	0	0	3.0	0.8	0.1
08001	12	V	500	29	0	0	3.4	-0.5	-0.2
08508	00	V	500	30	0	0	3.3	0.1	-0.6
08508	12	V	500	30	0	0	3.7	0.1	-0.6
08594	00	V	500	1	0	0	3.0	-3.9	-0.1
08594	12	V	500	16	0	0	3.0	0.3	-0.6
60020	00	V	500	28	0	0	2.5	-1.2	0.0
60020	12	V	500	30	0	0	3.7	-0.9	-1.8
71600	00	V	500	27	0	0	3.8	-0.2	0.5
71600	12	V	500	27	0	0	3.9	1.1	0.8
72201	00	V	500	28	0	0	3.2	1.1	0.0
72201	12	V	500	28	0	0	1.8	0.0	0.8
72304	00	V	500	29	0	0	4.3	0.0	1.2
72304	12	V	500	30	0	0	2.0	-0.7	1.8
72402	00	V	500	27	0	0	3.9	0.8	1.0
72402	12	V	500	28	0	0	2.5	0.2	1.8

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72606	00	V	500	26	0	0	4.1	-1.2	-0.3
72606	12	V	500	28	0	0	2.8	-0.1	1.0
74494	00	V	500	27	0	0	2.7	0.4	0.7
74494	12	V	500	27	0	0	2.8	-0.4	2.2
78016	00	V	500	8	0	0	3.5	-0.3	0.3
78016	12	V	500	11	0	0	3.5	-0.8	0.3

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45